 This Number (XX.) begins a new year (1860) and a new Volume (VIII.) and will be sent only to subscribers who pay in advance, for the number, (\$1.50,) or for the Volume, (\$2.50,) or for the year, (\$4.00.)

F. B. PERKINS, HARTFORD, CT.

# THE American Journal of Education.

No. XX.—MARCH, 1860.

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THE AMERICAN JOURNAL OF EDUCATION for 1860 will be published quarterly; viz., on the 15th of March, June, September, and December.

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F. B. PERKINS, *Hartford, Conn.*

F. C. BROWNELL, *New York City.*

## I. EDUCATIONAL APHORISMS AND SUGGESTIONS,

ANCIENT AND MODERN.

---

WE had made some preparation for a series of articles in successive numbers of this Journal, embodying the most remarkable sayings, more or less aphoristic, of wise and good men, in different countries and in different ages, on the subject of Education and Schools, when we found the labor of collecting very much abridged in a volume of Dr. J. F. T. Wohlfarth, of Kirchhasel, in the Principality of Schwarzberg-Rudolstadt—entitled "*The Pedagogical Treasure-Casket: \* a Theory of Education, set forth in the most remarkable expressions of the wise men of ancient and modern times.*"

The matter is arranged under the following heads:—

- I. Man—his dignity and destiny.
- II. Education—its nature and value.
- III. Parents and Teachers—their duties.
- IV. Early Training—home education.
- V. Obedience to Parents.
- VI. Female Education.
- VII. Intellectual Culture.
- VIII. Subjects and Means of Education.
  - 1. Language.
  - 2. Natural Science.
  - 3. Geography.
  - 4. History.
  - 5. Mathematics.
  - 6. Philosophy.
  - 7. Books.
  - 8. Poetry.
  - 9. Music.
- IX. Religious Instruction.
- X. Discipline.
- XI. Example.

The contents are introduced by the following Preface.

During the preparation of his "*Pedagogy from a Practical Stand-point*," the idea of a collection of the more remarkable expressions of the wise men of all times, on a subject so steadily increasing in importance as that of education, had occurred to the editor with the more force because such an anthology was not forthcoming for his own use, and because it seemed to him that it would furnish a store of incitements to a holy enterprise not to be found in any other way, would disseminate the most fruitful seeds, and would offer a species of guide,

---

\* "*Pedagogisches Schatzkästlein.*" Von Dr. J. F. Th. Wohlfarth. Gotha, 1857. 416 pages.

before unattainable, to all whose vocation and duty it is to labor, directly or indirectly, for the good of the next generation; especially for educated parents, school officers, and public and private teachers.

Acquainted by the nature of his studies with the treasures of ancient and modern pedagogical literature, and in possession of a rich treasure of extracts, the editor seized with pleasure the hand which his publisher, so unwearied in his exertions for popular education, held out to him; and he now lays his collection before the public.

On the difficult point of arrangement, the editor concluded it best to proceed partly by chronology and partly according to subjects: which may account for the location of some extracts earlier or later than at first view might seem appropriate.

The editor would gladly have inserted still other extracts from useful teachers and celebrated wise men. But this would have rendered the extent of the work too great. According to the best judgment of the editor, however, at least all the chief subdivisions of his subject have been discussed. He is confident that under the circumstances his apology will be accepted, if any maxims of eminent men shall not be found when looked for.

The author introduces the following parable from Hawke, as symbolic of the work of the parent and teacher.

A gardener planted, by the garden-wall, a little tree of a remarkably fine kind. As it every year grew stronger, it threw out strong shoots.

But every spring and every summer the gardener cut off many of these.

They were waste wood, he said, that injured the valuable branches, taking the sap away from them and keeping them in the shade.

The children wondered at his doing so, and could not understand it.

But after a few years the little tree bore its first fruit, which tasted excellently to the children.

But the gardener still continued to prune it.

The little tree is a child.

The gardener is his father, his teacher.

Children are endowed by God with good gifts and noble impulses.

But these easily degenerate, and destroy what is good, both in body and soul.

Therefore must parents and teachers continually direct the child, teach him, blame him, even discipline him.

Thus will grow up at last a lovely youth, and a useful man, or a good daughter.

We publish in this number the first three chapters of Wohlfarth's work very nearly as they stand. In succeeding numbers of this Journal, we shall give the remainder of the book, substantially as it was compiled; and shall also add, under the existing heads, such other selections as we have gathered, and others under additional chapters; with the intention of ultimately completing such a comprehensive and valuable collection of detached thoughts, aphorisms, and suggestions, that every practical teacher and friend of education shall be enabled to find in it something to stimulate reflection, to suggest expedients, or to solve doubts.

## I. MAN—HIS DIGNITY AND DESTINY,

AS THE SUBJECT OF EDUCATION.

AND God said, let us make man in our image, after our likeness; and let them have dominion over the fish of the sea, and over the fowl of the air and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.

So God created man in his *own* image, in the image of God created he him; male and female created he them.

BIBLE, *Gen.* i; 26, 27.

And the Lord God took the man, and put him into the Garden of Eden to dress it and to keep it.

And the Lord God commanded the man, saying, of every tree of the Garden thou mayest freely eat.

But of the tree of knowledge of good and evil, thou shalt not eat of it; for in the day that thou eatest thereof thou shalt surely die.

BIBLE, *Gen.* ii; 15-17.

When I consider thy heavens, the work of thy fingers, the moon and the stars, which thou hast ordained;

What is man that thou art mindful of him? and the son of man, that thou visitest him.

For thou hast made him a little lower than the angels, and hast crowned him with glory and honor.

Thou madest him to have dominion of the works of thy hands; thou hast put all *things* under him.

O Lord our God, how excellent is thy name in all the earth!

BIBLE, *Psalms*, viii; 3-6, 9.

And they knew not the secrets of God, nor hoped for the wages of justice nor esteemed the honor of holy souls.

For God created man incorruptible, and to the image of his own likeness he made him.

BIBLE, *Wisdom of Solomon*, ii; 22, 23.

Lay not up for yourselves treasures upon earth, where moth and rust doth corrupt, and where thieves break through and steal.

For where your treasure is there will your heart be also.

Behold the fowls of the air; for they sow not, neither do they reap, nor gather into barns; yet your heavenly father feedeth them. Are ye not much better than they?

And why take ye thought for raiment? consider the lilies of the field, how they grow; they toil not, neither do they spin;

Therefore if God so clothe the grass of the field, which to day is, and to-morrow is cast into the oven, *shall he* not much more clothe you, O ye of little faith?

BIBLE, *Matt.* vi; 19, 21, 26, 28, 30.

For in the resurrection they neither marry nor are given in marriage, but are the angels of God in heaven.

I am the God of Abraham, and the God of Isaac, and the God of Jacob? God is not the God of the dead, but of the living.

BIBLE, *Matt.* xxii; 30, 32.

For ye have not received the spirit of bondage again to fear; but ye have received the spirit of adoption; whereby we cry, Abba, Father.

The spirit itself beareth witness with our spirit, that we are the children of God:

BIBLE, *Paul's Ep. Rom.* viii; 15-16.

Marvel not at this: for the hour is coming, in which all that are in the graves shall hear his voice,

And shall come forth; they that have done good, unto the resurrection of life; and they that have done evil, unto the resurrection of damnation.

BIBLE, *John*, v; 28, 29.

The destiny of man is, to perfect himself.

The wise man, whose virtue is actively efficient, endeavors everywhere, always and in all circumstances, not to undertake anything which violates the laws of his reason.

Riches and honor are two things which mortals desire; but if the reason does not approve of the possession of them, the truly wise man will not seek to attain them.

Men hate and flee from poverty and abasement.

But the truly wise man, although unjustly thrown into such circumstances, will never try to escape from them by unjust means. CONFUCIUS.

According to our relationship to the gods, is virtue—moral excellence—the proper aim of our life.

Above all, our happiness should depend upon our immortal part; which the will of the gods, our creators, has made the noblest. ZOROASTER.

How brief is this life; and how unhappy is he who does not apply himself to the practice of virtue! virtue, which produces the only true good which we can enjoy with real profit.

That death is certain, no one doubts.

We are only ignorant of the moment at which we shall die.

But if it is true that it is to come upon us, whether we are good or bad, then turn your attention to it, and determine on which of those two sides you will be ranked.

THE HINDOO BOOK, *Cour-Vedam*.

He who always draws in his senses, as the tortoise does his limbs, from contact with sensual allurements, his soul is firmly fixed in wisdom.

BHAGAVAD-GITA.

Men should pray, not to the visible material sun, but to the divine; to that incomparably higher light which illuminates all, rejoices all, from which all proceeds, to which all must return.

*Laws of Menu.*

The wise man seeks to acquire knowledge and wealth, as if he were not subject to death or sickness; and fulfills his religious duties, as if he were upon the verge of death.

Knowledge produces humility, humility worth, worth wealth. But from religion comes happiness.

Knowledge is the most valuable treasure, for it can not be stolen nor consumed.

As the figures on an earthen vessel can not be easily effaced, so is wisdom impressed upon the young.

AUTHOR OF *Hitopadesa*.

The end of all instruction is virtue; and after this must the scholar strive, even as he who draws a bow, must fear nothing so much as to miss.

The teacher must set before the young a high object, by the examples of the wise men of old; he must proceed as does the sculptor in forming the rough stone.

Instructions and admonitions must be as the spring rain to the needs of the husbandman.

TSCHUCHI.

Strive to make your exterior brilliant and your interior pure; let every look and gesture, every word, be a precious stone; that you may become lord of the earth, of your wife, of your substance, of health and splendor.

Whether you wake or sleep, consider always what is a proper regard for yourself; whatever you do or omit, never forget that you are setting an example.

Never must you cherish the smallest fault; a rule that will save you much damage; nor can you cultivate the smallest virtue without receiving a double reward.

He who plants no corn will gather no ears; and he who does not gather his crop, on what will he live?

*Book of Chinese Poems, collected by CONFUCIUS. After RUECKERT.*

A just man obeys strictly the voice of his inner self, that in all his actions he may conform his will to it.

He who is deaf to this heavenly voice, will give free course to his passions, and will call every vice to arms.

Oh, how is it possible for one to become a good and wise man, who despises this ray which shines to each man from heaven? How can such a man escape from evil and arrive at perfect goodness?

No: He will do what is inconsistent with the dignity of man, and will thus fall into the very evils which he would avoid.

CONFUCIUS.

For a guide, choose Reason.

Then, when you leave the body, you become immortal, like one of the eternal gods; no longer subject to death.

Accustom yourself, therefore, to do all things according to Reason.

PYTHAGORAS.

Let man strive to be worthy of Heaven; let him, in this world, do good out of a pure heart; let him be pure in thought, word and deed; let him seek only what is good, and be holy and speak the truth.

ZOROASTER.

Reason is the noblest and best thing; and this the gods have freely given to us.

EPICETUS.

Man consists of an elementary nature, and a rational or divine principle; a part of the universal soul, an influx of the central fire, and an irrational part, namely, the passions.

At death, therefore, it is only the first of these that perishes. The reasoning part, in virtue of which man is man—the spirit itself, is immortal.

When death loosens his chains, he goes, with an ætherial body, to the abodes of the dead, until the time when he returns again to the earth, in order to dwell there again in another body, human or animal, until at last, after having become fully purified, he is raised up to God, the eternal source of all good.

Harmony in all things is the end after which man should strive. As in the universe, it should exist in man, as if in a miniature world.

Therefore man should endeavor to understand himself; that he may attain to perception of abstract relations, of harmony, of heavenly beauty, and thus may enter into fit intercourse with the divine, and find therein his highest good.

PYTHAGORAS.

It is by virtue that man makes himself like God, so far as it is possible for him.

Virtue consists in justice, in moderating the desires, and in holiness.

Religion secures to the just man two inestimable advantages; unbroken peace during life, and blissful hope in the hour of death.



It would be frightful to believe that the Gods were mindful of our gifts and sacrifices, but heeded not whether the soul is holy and just.

PLATO.

When in the morning you wake from refreshing sleep, reflect at once and seriously, what you must do during the day. Before sleep closes your eyes, think three times over all that you have done during the day; and ask yourself, whither you are going, what you are doing, and what you yet lack of the divine; what you have overlooked, what done, and what neglected.

PYTHAGORAS.

What is the noblest thing in human life?

Not to fill the sea with fleets, to hoist your flag on every coast, or if there is no more land, to search the ocean and discover unknown countries; but it is to attain to intellectual insight; and to win the greatest victory—that over vice.

Those are innumerable who have conquered cities and nations; but those who have conquered themselves are but few.

What is noblest?

To elevate the mind above the threats and promises of fate; to endure ill-fortune with cheerful courage; to receive whatever comes as if it had been so willed. For weeping, complaining, sighing, are to resign our faith.

What is noblest?

To let no low thoughts come into the mind; to lift up towards heaven pure hands and an upright heart; and if an accident shall put you in possession of what others value highly, to preserve the same demeanor when it comes and when it goes.

What is noblest?

To be every moment prepared to die. This makes free; not according to the provisions of the Roman law, but according to the law of nature. He is free who is not a slave to himself. Such slavery is eternal. To be one's own slave is the severest servitude. And yet it is easy to free one's self from it.

Oh, it is delightful to wander beneath the stars, to laugh at the magnificent halls of the rich, and at all the treasures which the earth has already yielded to them, and which she still conceals in her bosom for the satisfaction of their avarice.

And the wise man says, This is the speck for which so many nations ravage each other with fire and sword!

If the ants were endowed with human reason, would they not divide their little realm into many provinces?

There is something lofty and noble in the human soul, that gift of the gods—yes, something divine.

When the day arrives which shall separate the union of human and divine things, I will leave my body behind, where I found it, and give myself back to the Divine.

There is but one heavy earthly burden which withholds me from my flight beyond the stars.

But our abode during this mortal period is only a type of a longer and better life.

As we are preserved for months in the mother's womb, and prepared for the place for which we are designed, so in like manner, during the whole period from youth to age, are we in preparation for another birth.

The hour of death is the last hour, only of the body.

All which you here see around you, consider only as the baggage at an inn.

The transition must be ventured; nature compels you; both at your

entrance into the world and at your departure out of it. The Divine also, is around us. It is with us. It is in us. SENECA.

Man is distinguished from other creatures, chiefly by this; that the desires and actions of the latter depend only on transient impressions upon the senses; while man, endowed with reason, seeks the causes and consequences of things, and lays down a fixed plan to live by.

Moreover, man alone possesses the capacity of speech as a means of communicating his thoughts.

Moreover, man alone possesses the desire for knowledge, or the impulse to know truth, together with the means of satisfying this impulse.

Finally—the last great distinction of nature, the last great effort of reason—man alone is sensible of order, decency, propriety.

In man there exists a power which draws him toward what is morally good, and away from what is bad; a power as lofty as the divine power which maintains earth and sky, derived from the divine reason itself.

Sleep is the image of death—sleep, in which you wrap yourself daily.

A man dies with the utmost calmness then only, when the life which is departing encourages itself with good actions done.

No one has lived too short a life, who has attained and practiced perfect virtue.

We can then look upon death as a dismissal from prison and a release from chains, in order either to enter into an eternal abode prepared for us, or to be without any perception of or care for the future.

But, as we are not created by blind chance or accident, so it is certain that a higher being cares for us at death; a higher being who can not have created and maintained us here, in order after we have endured all manner of trouble, then to plunge us into the never-ending evil of death.

No; we must rather be convinced that there is some haven, some place of refuge, prepared for us.

Honor, justice, goodness—such is the path to heaven, and to the society of the noble who have already lived.

Elevate thyself, therefore, and act as not being thyself mortal, but thy body only.

For it is not this bodily form which is thyself, but it is the soul of each one, which is his own divine self; and no shape which can be pointed out with the finger.

Believe in the Divine within thee.

There is nothing more valuable than the mysteries of Eleusis, which purify this life from barbarism, and train it to humanity.

We truly comprehend the principles of living, when we understand not only how to live with cheerfulness, but how to die with better hopes.

CICERO.

Man consists of two parts; the body, formed of primitive matter, and the soul, sprung from the primeval force of the universal soul; that is, from God.

The body is the organ and mirror of the mind; and for that reason requires the most diligent care both for its support and development.

By reason primarily, man is distinguished from all other living creatures, raises himself high above them, and becomes a man, in the higher sense of the word.

The soul is an efflux of the universal soul; by means of it, man stands in the closest relation to God, is related to him, is his image.

It is through reason that we become wise.

The fundamental principle of human action can be no other than "Live in accordance with nature:" do what is consistent with your mental nature, your reason; live according to your reason, within which your

destiny is revealed—to your dignity as human beings—to virtue. Follow, in this manner, the principles of God; make the law which the highest reason follows, the rule of your action; let your will be in harmony with the will of the ruler of the world.

ANTONINUS PIUS.

Learn to know yourselves and the laws and designs of nature! Who are we mortals? To what duties and condition, and on what plan are we born? How and where can we most certainly recognize and attain the purpose of life? When is the glitter of silver evil? What desires are noble and profitable? For what purpose has God chosen me, and what part has he entrusted to me?—These things seek after.

PERSIUS.

Man lives in accordance with his nature, when he lives a virtuous life; not when he lives an animal life.

Man alone, of all living beings on earth, is the image of God.

By virtue must he make himself like him.

MUSONIOUS.

I am a man; nothing human is alien to me.

TERENTIUS.

Man is noble, if he is truly man.

ÆSCHYLUS.

Remember, that thou art a man.

SIMONIDES.

Thou art a man. Know this, and reflect upon it.

PHILEMON.

Man is distinguished from the other created beings of the earth, and principally by this: that the desires and efforts of the latter depend upon impressions upon their senses at the time, and are limited to the present time and place, with little memory of the past or care for the future. Man, on the contrary, is endowed with reason, which makes him capable of understanding the causes and consequences of things, of taking notice both of their connection and origin, of comparing similar subjects, and thus of joining together the future and the present, of laying down a plan of life, and thus of preparing in advance whatever is necessary to enable him to complete such plan.

Another peculiarity of human nature is, that the same reason enables men to communicate their thoughts to each other by means of speech, and to co-operate in case of mutual need; that they feel a still stronger and more enduring affection towards their offspring, than beasts, and that they are created not only to desire the existence and maintenance of all social organizations among men, but also themselves to take part in it.

A third distinction of the human race is, Desire of knowledge; the impulse to know the truth, and the capacity to investigate it.

Connected with this desire for truth and knowledge is that for honor; the desire for pre-eminence and power; in accordance with which, every man whose natural character is not completely ruined, listens to no one so willingly as to him who teaches something before unknown, and furnishes rules for some department of effort never before investigated; or to him who, for his own good, commands him in accordance with justice and law.

This latter tendency, again, is related to greatness of soul; and strengthens it to raise itself above the changeableness of the accidents of human life.

The last great trait of human nature, and the last great effort of reason is, that man alone, of all created beings, has a sense of order; an idea of propriety and decency, or of any fixed rule for utterance or action.

No other creature regards beauty, grace, or harmony of parts, even in visible objects.

Our destiny is serious; our occupations are great and important.

In truth, when we reflect what is man; what powers lie within his nature; to what excellence he can attain, we shall feel that nothing can

be more unworthy than to waste his strength in effeminacy, his days in tickling his palate or in the gratification of still more ignoble desires.

We must, on the contrary, consider that the true life, which is conducted on strict principles, where the body is contented with little care, the passions are kept in subjection, and where freedom and modesty are preserved.

CICERO.

Thy mighty being, O God, appeared when all things slept in night, and when the earth, which thy love called into being, commenced its existence. Millions of beings greeted thee, O God; and thy paternal eye, and thy heart, all-embracing, rejoiced at the pleasures of creation.

But of these millions of beings, none looked up to thee, nor could read the stars. The earthly life alone occupied their thoughts. Though sun and moon, and thousands of worlds, swung round in golden splendor, none saw their brightness, nor him who made them.

Once more, O God, thy power uttered a summons, in a loftier tone; and then did nature's beloved son issue from the womb of earth. And the rich chain of existence now possessed its most beautiful link; and creation an ornament consecrated by God.

Look upwards! Delightful knowledge, that we are not dust. The father says so, and his child looks up to heaven; recognizes the hidden Master in his great masterpiece; feels God summon him to heaven. And thus God becomes the object of his desires.

O holiest of pleasures! Man, recognize thy vocation! Thou art more than all the suns; thy vision reaches beyond suns. I can recognize my Creator; can look upon the vault of the heavens; and my soul can discover Him within the substance of this world.

Virtue, after which we strive, is noble, not because to be free from evil is a good in itself, but because it loosens the fetters of the mind, prepares it for a knowledge of heavenly things, and renders it fit to enter into intercourse with God.

The mind attains to the perfect and complete state of happiness of which the human race is capable, when it treads every evil beneath its feet, and elevates itself, and penetrates into the inner depths of nature.

The mind is the noblest part of us.

God is nothing but mind.

He is all reason; while mortals are so completely in the power of error, that men take to be the result of chance, of mere accident what is most beautiful, legitimate and carefully devised.

To become nearly acquainted with God is, to pass without the mortal nature, and to become partaker of a splendid destiny.

SENECA.

What a morning; when a new sun shall enrapture the free awakened spirit; when, in the joy of heaven it shall gaze for the last time upon its rejected shell! What a morning; when, beside itself with pleasure, the soul shall become part of the new and golden creation; when a choir of heavenly forms shall surround their newly glorified brother! When the vast universe opens before him, he hears the sweet and holy sounds of heaven, millions of paradises blossom before him, and a thousand suns rise and set! Yes, there is a rest to come. Beyond the grave lieth eternity. Blessed, blessed are those who die in the Lord! Our faith is immortality!

Man was not created that he might live forever in the lowest place in the universe, but that he might at last possess heaven, which in this life he regards with wonder; and that he might practice himself in considering and caring for heavenly things.

Aristotle says, "Man is made for a condition of happiness; that is, to practice and inform himself in virtue."

But in the infirmity and weakness of nature, who can attain to this end?

But man, as the scripture saith, is made to be like God, and to live with him forever.

Here on earth he must praise and worship God, must thank him, and obey his word in patience.

But in the future life we can entirely attain to that end.

Man is destined to a higher and better life than this temporal and bodily one, even though his nature had remained unperturbed and perfect.

If you would rightly define man, call him a being endowed with reason.

Man is a peculiar being, created in order that he may become a participant in the divine nature and in immortality.

One man is a better creation than heaven and earth.

LUTHER.

Although man is a being who stands upon the confines of time and unity, between the primeval conception and its expression, between the worlds of the understanding and of the senses, a partaker of both natures, a being intermediate between two extremes, placed at the horizon of nature, yet notwithstanding these two natures, his proper aim, his real destiny, is a spiritual one.

For the human soul is independent, divine, lord of nature yet free of it, living from itself, complete, of infinite powers, a medium of eternal truth, all-efficient, all-surpassing.

What therefore is the aim and destiny of this being?

To attain to the highest existence, for the reason; the highest degree of insight, for the feelings; and to the highest good, for the will.

This is shown by the insatiableness with which, whenever we anticipate a new truth or advantage, thither we direct our investigations and desires.

The desire of perfection is born in man.

He can not endure Sometimes, Somewhere, Particular, Partly, Single; he desires Always, Everywhere, Universal, Wholly, All.

His mind is unlimited.

Wherever he is, he finds himself in a center, and his power of imagination unlimited.

Nor is this endeavor of the mind after perfection, empty or unsubstantial.

Universal nature expands herself before him in all her splendor, and promises him satisfaction.

But is it not to be feared that these researches into the immeasurable will make us indifferent to our earthly lives?

By no means.

For, however lofty the end after which our higher nature strives, yet our investigations are limited, while in this life, by our material constituents, to what we now are.

GIORDANO BRUNO.

Of plants and animals, nature both fixes the destiny, and also accomplishes it.

But of man she determines it only; and leaves to himself the fulfillment of it. It is this alone which makes him man.

SCHILLER.

Thou, O God, dost form into thine own image the son of the dust; thou hast filled him with thy spirit; he looks toward thy throne.

Thou thyself hast consecrated him ruler of the globe. He lives in communion with spirits; his lot is eternity.

Even here below, shall he walk in the holy starry road of truth; even here shall he be near the angels, in the brightness of virtue.

Endow me, O God, with courage to follow their steep path. I strive after the highest good; I implore thy counsel.

Upon earth is my place of labor; yet thou dost summon me hence. Virtue is the reward of virtue—I trust always in thee.

Humanity should, and must, and can have but one destiny.

Let this inspiring prospect not trouble you. Indeed, this destiny of mental and moral perfection will never be perfectly attained.

Yet it is not merely a sweet dream—not merely a delusive hope for the necessary progress of men. They ought, they must ever approach nearer to this end. *AUTHOR of Contributions to the Correction of a few Ideas on Education.*

Believe in a better world.

This alone will satisfy the reason; which finds no peace in the dry knowledge of a systematized activity of the senses; no truth in the teachings of metaphysical artists in thought; no rest in gloomy denials.

There must be something better than what there is now.

This fundamental idea includes all the necessities of our knowing, feeling and determining existence.

It is the last support of the weary.

It maintains the courageous, amid the confusion of the world.

It casts, along the nightlike path of fate, a light now weaker and now stronger, but never wholly extinguished.

BOUTERWEEK.

Through storm and tempest, through pains and labor, anguish and misery, through the terrors of death and of the grave, the spirit of the world leads the race of man, from one step to another, of education, of development, of proving, purification and ennoblement, into the temple of immortality.

F. L. SCHLENKERT.

The highest golden age of men will come, when the sciences are carried to the highest state of perfection admitted by the human organs; when man shall have clearly defined the limits within which his knowledge of the universe is confined; when he shall comprehend the irreconcilable difference between his desires, and what he can attain on earth; and, instructed by the strange results of this difference, shall turn about and establish a healthy and proper equality between those desires, and the objects within the actual sphere of his activity; when, lastly, enriched with all the knowledge of which his nature is here below capable, he shall unite with those acquirements and adorn with them the happy simplicity of his primeval condition.

HEMSTERHUIS.

There is but one mode of building which will continue; the simplest, the greatest. It outlasts all the centuries of the nations. Physically, as well as morally, and politically, humanity is in a process of eternal progress and endeavor.

Perfectibility is no dream; it is the means and purpose for the development of all that the character of our race—humanity needs or affords.

Lift up your eyes and see!

Everywhere, the seed is sown. Here it is corrupted, and germinates; there it grows, and ripens to an eternal fruit.

Here, it lies beneath snow and ice. Courage! The ice melts, the snow disappears, and uncovers the seed.

No evil which humanity encounters can or will be other than useful to it. Such is my confession of faith. Let us hope and labor! HERDER.

He, before whose mental vision shines in peace the lofty beauty of virtue—who, far from pride and self-seeking, likens himself to her inward goodness—who practices goodness without ulterior design—he, saith Jesus, shall see the Lord.

Such a one aspires after the highest good; after wisdom and righteous-



ness. For, said Jesus, if you possess this, all else is already yours ; you possess peace, rest of soul ; all things will be given you.

Yet hope not, O Christian, that virtue will always secure you happiness on earth. How many have since youth been conscious that its light and strength were nearer them ; have shone, pure as angels, with inward beauty, but yet have sighed beneath earthly sorrow.

It is virtue only ; only goodness of soul, inward excellence, which is entirely within our reach. It is not chance nor good fortune, opportunity, nor time, but the wisdom of God, which has thus ordained and put so much within the power of all !

Therefore propose not for the highest object any preference which virtue is to ensure. No. Act justly and do good, though even your good design fails. And if you ask, What profit is it to me ?—That you do it, must be your reward.

For know, that what God commands, reason requires. Your loftiest aim is ennoblement. For that only are you living here. To this only look ; and reject all lower aims.

And if you follow faithfully the inner voice, hope for a corresponding reward. God, the witness and judge of your life, is also the future requiter of it. Immortal life, and blessedness, are its sure rewards.

Heaven is not virtue only, but pleasure also and blessedness. Here, they are often not united ; yet this condition aids toward perfection. The noble souls who do good actions here, will there be raised to pure happiness.

But O man, fall not into the error of expecting heaven, as your hire. Let your motives be reason ; preference for the better ; it is your duty to be good and noble. What art thou ? Only a sinful servant. For before God, who is justified ?

Yet, what God has clearly promised through the mouth of Jesus, that, reason also bids us hope ; and we may pursue our path with joy. A heart pure from sins and vices can not be forever miserable.

Often must I—for God, and duty, require it, offer up my life. And if in this there is no compensation, then, my soul, thou dost contradict thyself within me ; then would reason, under the impulsion of virtue, become its own destruction.

Yet, if you have finished the fight here, your reward follows in a future life. If you die in the cause of virtue, you win, although seeming to lose. Thus did Jesus Christ, the model of every virtue, die in his duty.

Let me never mistake Thy summons, O God, who hast given me reason, and Scripture. Let Jesus continue to call me his disciple, true to my Master, even to the grave. May my highest purpose be right and duty ; and let not the reward of thy grace fail me.

MARIE LOUISE WILHELMINE, *Princess of Neuwied*. (Poem.)

Through the world and its armies sounds the lofty call. Exultingly the angel choirs sing, "One is he who made us !" Yea, the mind in its activity, the earth in her splendor, were created by one wisdom only ; are maintained by only one power.

The great work of our God pervades all the spheres of space. All is unconcealed before him ; and all is the object of his love. His laws never change ; the same great plan teaches the worm to abide upon his leaf, and lays out the path of the comet.

Upon earth he hath laid out a lovely garden for man. To await in faith his paradise, did He summon him into the world ; to diffuse light and blessing along the path of his life here ; to recognize the greatness of God ; and to raise himself toward the angels.

Within the nature of man, the image of his Creator is faithfully shown.



God's love, God's goodness, beam mildly from man's brow. Hail to man! May he never lose this heavenly brightness! And thus may he at last, in the higher spheres, attain the destiny of his life!

As we recognize ourselves to be double beings, souls acting within earthly bodies, so is our destiny a two-fold one; our life on earth is a mission, for time and for eternity. For this present world; within which, in proportion to our knowledge, our powers, and our opportunities for noble efforts, each of us contributes to the collective well-being of our race in the field appointed him by God. For the world beyond the grave; whose coast the longing soul pictures to itself as does the mariner a neighboring shore; for which we must, in the faithful performance of our duty, prepare ourselves, by continual endeavors after the improvement of our souls and hearts.

In this point of view, man is like an amphibious animal of higher grade. As these live either in water or on land, so does he live for time and for eternity. Man constitutes the connecting link between the unreasoning beings of this earth, and the realm of spirits; whither, as their instinct carries birds to warmer regions, he is impelled by holy longings, aspirations and hopes, which can as little deceive him, as the instinct which carries the birds with certainty, over mountains and seas, to the countries they seek.

As the magnet points surely to the north pole, so do the needs of the spirit as certainly lead towards our everlasting home.

Only thus will man act in accordance with his double destiny, live in a manner corresponding to his dignity, and possess the highest happiness of which he is capable on earth, his security for the attainment of his highest grade of perfection. (*Poem.*)

Who can think, under the burning rays of the noonday sun, the same thoughts and in the same manner as at midnight?

Thus, then, we find ourselves as it were in another world, without observing the change, when, if there were no sunset and no twilight, we should experience a painful shock, as we do to a perceptible extent, when the sun or moon is eclipsed.

Thus, my feelings tell me, the darkness and the heavenly host were created, to turn aside our gaze from earthly things, to loose the burden of our temporal periods and labors, to give us, by their innumerable sparks of light, another and a lofty sense of the infinite, of eternity; since by the very fact that we know not what and where they are, they speak to us of so many mysterious and supernatural things.

Thus saith God from heaven, every day, and every night.

The day saith it to the night, and the night answereth the day.

They say it to all the nations of the earth.

HERDER.

Throughout all the animal creation we see that each being has a certain number of ways pointed out to it, upon which it may go; and that all others are prohibited to it.

Nor is it enough that it can not actually pursue these; it has not the power to desire to do so. Its desires, as well as its means, are fettered.

On the contrary, no single direction is exclusively prescribed to the activity of man. Of anything which is not directly possible to him, he can remove the inward difficulties by practice, and the outward by all manner of auxiliary means; and he can at least desire and endeavor after what is wholly impossible.

This characteristic clearly displays his character; and his distinctive physiognomic trait is, a tendency to development, such that even the idea of constraint is unendurable to him, and which is intelligible only by means of freedom.

This, it is true, does not reveal itself in any single trait, but in the

whole extent of physical development, and in the free co-existence of all the parts. And accordingly, it can not be described in words, but can only be seen and felt.

When, however, man, by means of this his peculiar freedom, seems to have passed beyond the limits of the finite, still he does not thus go beyond the bounds of nature; but these are only set at a greater distance.

Although matter, by its immobility and inertia, limits the free activity of the mind, yet its peaceful quiescence moderates the lawless force of the will; and while, by its strict observance of laws, it forcibly constrains the mind, it at the same time limits its tendency to excess, which is continually leading it to neglect form.

As therefore man, as a compound being, unites freedom with natural necessities, so it is only by the most complete equalization between these two that he attains the ideal of humanity. WILHELM VON HUMBOLDT.

Under eternal, reverend and great laws must we all fulfill the circle of our existence.

Man only can accomplish the impossible; he distinguishes, chooses, judges. He can give permanent existence to a moment.

He only may reward the good, and punish the bad; may save, and may rescue; may unite in usefulness whatever is erroneous or wrong.

Let noble man be helpful and good. Let him unweariedly work out what is useful and right; and furnish us a pattern of the being we long for. GOETHE. (*Poem.*)

Every individual man, we may say, contains within himself, according to his endowments, a purely ideal man, to correspond precisely with the unvarying unity of whom, through all changes, is the great problem of existence. SCHILLER.

Man is bound to be man in the truest and most proper sense.

His actions should be derived from the inward harmonious development of all his endowments. An immediate consequence of this would be the harmony of the natural and intellectual world without him, so far as the sphere of his activity extends, and so far as the external world can be modified by his existence and his free activity.

The development and perfection of the intellectual and spiritual faculties in man, therefore, is not the sole object; his bodily powers and faculties should also be brought to as high a degree of perfection as possible. What is required is, the co-operation of his whole mind and whole body together—mental and bodily harmony—the reason, at the same time, affording the immediate ideal for human efforts, and for what relates to itself.

Again: in the cultivation of the intellectual principle, we should not be satisfied with the cultivation or development of some one or other capacity, any more than we should in the cultivation of the body. In either case, a one-sided culture is to be rejected and prohibited, especially where one talent grows at the expense of others.

Man will become perfect, in proportion as he is developed in the greater number of directions.

AUTHOR OF *Essay on the Fundamental Impulses of the Reason.*

How may I know to what destiny, beyond the hour of death, God calls me?

My vision does not reach to the answer of this question.

But the voices of nature, reason, and revelation, answer me with wondrous unanimity, as to what I shall become, and what I may hope.

What will the moss on the rocks, the oak on the mountain, the eagle in the air, become?

Nothing except what they are and will be by virtue of the qualities implanted within them by the Creator—a moss, an oak, an eagle.

In like manner, the soul will become, what it is capable of becoming, during the immeasurable period of its existence, by virtue of the capacities with which it is endowed, namely, a being which shall approximate towards God, by an unending progress in self-perfection:—a power higher in grade and activity than thousands of powers independent of it, which exist and operate upon it: and which comprehends and governs itself:—a knowledge in which the greatness of God and the splendor of the universe are revealed with a never-ceasing increase of happiness and of extent.

Such is the glory, eternal, and great beyond all measure, which awaits us; our own; which we perceive, not in the visible, but in the invisible. (Matt. v; 48.) ZSCHOKKE.

Between man and the worm, full of imperfections, which crawls upon the vile earth, and the lofty angel, there is at once a distance, and a relation. The divine reason of man escapes beyond his narrow sphere of life. Man is always man, full of imperfections. By virtue shall he elevate himself from obscurity and degradation, into loftiness and splendor, and become immortal, after his brief life. UZ. (*Poem.*)

Where are the countless millions who have here assumed and laid down their bodies?

The material of those bodies is yet here; but their immortal part has departed.

The material, changed into new forms, has become a constituent of other earthly beings. But the immortal has not re-appeared.

Oh, where is that undiscovered sacred land to which death introduces spirits? Whither do they go, with their new life, and no longer oppressed with earthly fetters?

Beyond space and time is the abode of the Eternal; where there are no more limits; where—am I capable of the thought?—there is no Where or When.

Me also wilt thou receive, nameless Beyond; and my whole heart, thirsting after immortality, aspires after thee.

Beautiful is this earth; but my heart belongs not to it. Sweet is the consciousness of life, but my heart demands another existence.

Tremble not, great and noble heart, full of immeasurable desires! Tremble not that thy destiny is a mystery; that a deep night overhangs the region towards which time is silently hurrying thee, and within which it shall cause thee to vanish forever.

Remain true to thyself; and faith and hope shall never leave thee.

The more thou hast confidence in thyself, with so much the more courage wilt thou advance towards the secrets of thy future.

K. H. HEYDENREICH.

What is the destiny for which God has summoned me out of nothing?

Was I born for a mere momentary phantom, a transitory existence between cradle and coffin, for unknown designs, or for the purposes of some being unknown to me, who amuses himself at my laughter and at my tears? Shall I fall and disappear and be gone forever, like the flower in the garden, or the day-fly?

But how can I conjoin these ideas with that of the infinite perfection of God?

Why have I within myself the living conviction that I am the purpose of myself?

Why do I discern lofty purposes, which in so brief a life I can not pos-

sibly attain; while other creatures have no qualities except such as they need for the completion of their earthly existence?

Yes, man is soul; the body is dust: only the garment and agent of the soul in its earthly place for the enjoyment of the earth.

The body, the animal kingdom, with which we are surrounded, changes with the year. The soul grows richer in knowledge, and feels that it remains the same which it was at the first beginning of its consciousness.

The body clings closely to the earth from which it comes; the soul finds no rest in what is earthly, and is never satisfied with the objects which it attains, but from the fulfillment of one wish aspires after that of a second, then of a third, and so on to infinity.

Thus the soul is an actual permanent part of man; and the invisible and eternal is its life. Its origin is divine, and to the divine it tends.

ZSCHOKKE.

The human race has a double right of citizenship; in heaven, and in nothing. God has created him from the best of all matter; half for eternity, half for destruction.

VON HALLER. (*Poem.*)

Man may be considered from three different points; as human being, beast, and man.

As human being, we are to consider his body, and the perfection of it.

As animal, his perfection consists in his possessing the faculties and powers which spring from the union of these two constituents.

But as man, his greatness consists in the degree of his sensibilities, and of the self-control by means of which his soul can effect some actual result, proceeding from its own inward principles.

The more, therefore, man possesses, of self-dependent efficient energy, and the more completely the arrangement and powers of his organization are united for this purpose, so much the greater is his share of human character.

This is the rule used both by the common understanding which follows its feelings only, and by the cultivated reason; and which is recognized as the right rule, in the investigation of man.

TITENS.

How high soever man stands above all other creatures of the earth by his more perfect physical structure, especially his upright carriage, of which the ancients said that he was so created that he might readily look up to heaven and be reminded of his high destiny, (Ovid, *Met.*, I. 85, 86; Cicero, *De Nat. Deor.*, II. 56,) he is still further elevated by virtue of his intellectual gifts.

His understanding is far beyond the intelligent principle in animals.

What are all the arts which the most intelligent beasts learn from men, compared with those which men themselves have invented and carried to an astonishing degree of perfection; from the commonest mechanism up to the arts of the painter or sculptor, the physician or surgeon, the surveyor, or the astronomer who measures the depths of the heavens and subjects to his calculations the movements of the heavenly bodies?

And even these are but small compared to the dignity of the supersensual world, the divine realm of religion, which man's reason reveals to him, even though surrounded with a secret veil.

This is an exclusive advantage of man over the beasts; his reason; a divine spark in human nature, the true image of God, of which Cicero justly says, "Between man and beast the greatest distinction is, that the former is possessed of reason."

Where do the beasts show any elevation of ideas, or any aspirations for the ideal, the absolute, the perfect?

Do they advance at all according to any law, in any theoretical or practical accomplishment of infinite progress? Do they not rather all

reach to a grade of attainment and development, fixed by a lower natural law? Is not theirs a finite perfection, and are they not precisely the same, and neither better nor worse, than they were thousands of years ago?

If, however, man is a reasoning being, he is also a free moral being; a being who can only attain to that moral perfection which is his greatest good, to that self-satisfaction or blessedness, of which he is capable, by means of effort.

If man is, as his inner nature clearly proclaims him, a moral being, capable of infinite perfection, and destined to it, he must therefore claim to be, in his higher nature, immortal. Faith in individual existence and action after death is, as Kant says, a requirement both of the conscience (practical reason), and of faith in God, and this is so true that the materialistic philosophy of the old investigators, conducted from this moral basis, was convinced of the immortality of the soul.

Considering all this together, we can justly say that man is a double being; standing with his feet on earth, but whose head reaches to heaven.

In the former respect he is a being of the senses, in the latter super-sensual.

Nothing that is maintained relative to the different races of men, disproves this statement.

Kant.

High above all beings exists God, the creator of all of them; who unfolds the drapery of the stars, and exchanges night for the rosy morning. Along the golden lines fixed by his almighty power he makes his sun hasten, and rolls the wheels of all creation along a strictly defined path.

But in more unexplored roads he leads the blood through the heart of man, causes him to alternate between pains and longings, and to fall into joy or grief; gives us, as spiritual beings, the control of ourselves, to shape out for ourselves our inward world; and leaves to us the dangerous gift of a free will; which brings us either a curse or a blessing.

The mighty planets roll round the girdle of the sun; we see the stars compass them about; and the ocean rests upon the land. See, the worlds swing round in immeasurable circuits. See mountain and grass and tree, lift themselves towards planetary space.

The planet flies upon its fixed path, but man feels it not. Splendid are the ennobling garlands which virtue weaves for man. They knit together peoples and hearts; consecrate the holy flame of love, and heavenly warmth, felt and recognized, draws the human heart towards the highest.

Without, where the worlds shine, prevail the laws of wisdom and power; and in order pass on in their turns spring and winter, day and night. Justly and wisely ordered, the stars pass round the circuit of heaven, the drop assumes its proper form, and the sea roars in its mighty power.

But they know not the wisdom that directs them, and only wait blindly the hour for appearing; but in men there enlightens and burns the divine spark of natural freedom. He obeys in knowledge of law; and steers boldly forth upon the sea of eternity, with the sail of knowledge hoisted upon his wandering earthly vessel.

Death and change are the words that rule here, in space and time; upon the gates of this earthly temple appears the word Transitoriness. As the leaves fall from the trees, so one day, in the halls of heaven, in wild storm of woe, will sun, moon and stars perish.

The soul of man stands high above death and destruction. Though suns bury themselves in chaos, the spirit rises in its power above them; and seeks its home, its promised abode, that the powerful judge may recompense it for what it endured in its temporal prison, while doomed to its earthly nature here.

And thou creepest in the dust of the earth, lofty and God-created spirit! Dost thou not feel the creative force which lovingly impels thee upward? and dost thou, forgetful of its greatness, dost thou fall, raging wickedly, from the bosom of the clouds into the muddy grave of pleasure?

Recall to your bosom the power which raised thee above earthly things. In grace and in will, recognize the bridges from time to eternity. Wilt thou foolishly destroy them, and rise up against thy better self? Wilt thou faithlessly forget the high vocation for which the almighty ruler has created thee?

MONIS. (*Poem.*)

In this consists the dignity of man; that, being raised by form and endowments to a reason and freedom higher than those of beasts, he may become conscious of himself in God, may seek his destiny in similarity to Him, may consider himself the ultimate object of his own actions, and may, according to the order of nature and right, advance to a higher stage of perfection.

"Human dignity," and "Possession of the divine image," are perfectly synonymous.

Though by organization nearly related to beasts, yet man is distinguished from them by the nobility and form of his body, as well as by his possession of individuality.

Man only, on earth, has the right to be, by means of his intellectual nature, the object of his own reasoning actions; while plants and trees are for the use of men, he is for himself, and for the development of his inner nature; since God, the highest I (Exod. iii; 14), has given him, with life, the image of His own self-dependence and immortality. (Gen. i; 27, Wisd. of Sol., ii; 23.)

The life of beasts is only an action measured off between two fixed points; but the life of man is moving incessantly between finitude and infinitude. With every beat of his heart there opens before his consciousness an unbounded horizon, towards which his inward thoughts and wishes aspire; a world of feelings relating to eternity.

Like a progressive member, this sea of the mental emotions has no shore.

There spreads itself before his gaze, a world of endless freedom; and thus the prospect of an infinite progress, for which the Creator called him into being.

This is the heavenly law of freedom (James i; 25), and the freedom of the children of God. (Rom. viii; 21.)

As by the reflection of the Me, the common empirical consciousness, that central point of the knowledge gained by experience for the use of our earthly <sup>is</sup> reflected upon the inward senses, so, by the endeavor after infinity, the Me of man is reflected in the idea or picture of God, his father; and thus the consciousness of the senses is expanded to a consciousness of himself in God, the eternal basis of his being and life.

Moreover; man, as an organized being, attains to that stage of perfection which nature has limited for all earthly creatures, and then proceeds on again towards dissolution. But as a resolving and acting being, he not only has a definite duty to fulfill every moment, by which means he gains an inward value, but also the sphere of his virtues expands as he grows older, and though his organic powers fail, yet his heart and his will are purified, so that he comes to seek good for its own sake, and draws his latest breath still with the desire of a higher degree of attainment.

Pure and faithful love to God under the guidance of a clear and living faith, is the seal of immortality (2 Cor. i; 23), which the pious preserves within him as a pledge of everlasting glory.

VON AMMON.



The characteristic efficient principle in the training of the reason is reflection; which seeks to disjoin its life from the universal life of nature, and to live a life of its own, by its own rearing and self-governing operation.

Accordingly, we can set off three grades of human training:

1. The condition of self-developing, merely mechanical skill, by means of nature, without reflection; of reason as it first develops itself; of innocence; the golden age, when the gods lived among men; where a more luxuriant vegetation flatteringly received the reason; where nature brought up the growing reason, like a pet child, in paradise.

2. The condition of self-developing reflection; where the awakened reason seeks to escape the guardianship of nature, in order to live by its own powers and after its own will; a period of contest between education and mis-education; the condition of the iron age; of the plough and sword; of sin; of the opposition of the reason to itself; where the vegetative principle operates without restraint.

3. The condition of completed reflection or of the dominion of the reason; of regeneration, forgiveness, salvation, the millenium, everlasting peace, and of a continual hallelujah.

What, now, is the destiny of man?

It is an eternal one, whose law no earthly ear has heard, no earthly eye has seen; and the veil of its mystery no mortal reason will remove.

FRIES, *New Critique of Reason*, III., 239, &c.

As falls the flower of the field, so the mourning friend seeks, but finds no more the friend he loved. But only his body returns to earth. Let it ever be so! Let it be dispersed abroad, for it is earthly; if only its inhabitant remains.

Can this striving, this urging upwards towards perfection, this premonition and languishing after immortality, this spirit whose thoughts include whole worlds—my brother, can all this be sunk in the grave? Can God have created all this merely in derision?

No; thou dost not, eternal one, create in derision, nor in vain. Wisely hast thou enveloped thine image, the noble living spirit, in dust. This body may be destroyed, but the freed soul will joyfully direct its course towards the lofty choir of spirits above.

Voss. (*Poem*.)

Those of our recent investigators of nature, who, like Vogt, Moleschot, Büchner, &c., have reasserted the long-ago exploded claim of materialism, that what is called the mind, in man, is nothing but a phosphorescing of the nerves of the brain, &c., resemble, by their extreme and prejudiced devotion to the bodily side of nature, at the expense of the inner eye of the reason, people who should blind their eyes, and then assert, in spite of the whole world, that everything is plunged in night.

As truly as the field of mental life is as distinct from that of the material being, as the heaven is high above the earth, just so certain is it that an analysis of what pertains to space and time, can no more attain to the essence of a spiritual existence, of a nature different from that of bodies, than one can examine the heavens with a diving-bell, or make furrows in the ocean with a plough, or rise into the air with a freight train.

The bodily eye can reach nothing, either of the spirit of God, or of the spirit of man, the image of God.

Corporeal investigation can penetrate no further than to the comprehension of the powers which operate in nature, and unless those pursuing such investigations open the eyes of their mind, and open their ears to the voice from above which is to be heard throughout all our earthly life within us, in our desires and aspirations, and especially in the holy commands of the conscience, always witnessing the high dignity and destiny



of man, in such case, they have then reached the limits of human knowledge.

But these one-sided investigators of the inferior sciences of nature ought to recognize this fact, and not to presume to make assertions either for or against the moral dignity and eternal destiny of man. They ought to admit that the instruments of mere material natural studies can not avail within the realm of spirits; and at least be modest enough to limit themselves to the statement that from their point of view, there is no proof of individual immortality.

All this follows both clearly and naturally from the premises laid down.

But it would then by no means follow, that a higher method of natural investigation, a method under the guidance of that reason which, as the medium of knowledge of the divine, is what characterizes man as man, in the highest an investigation in that region of the spiritual world which includes ourselves, and which is as much a portion of nature as are space and time, which indeed may be likened to the illuminated side of the moon, while the other parts of it correspond to its dark portion,—it by no means follows that such a method could not demonstrate the absolute certainty of the immortal life of individuals.

And again; if we pursue this higher investigation of nature on these principles, we shall continually more clearly discern the stars of faith in God, virtue and immortality shining upon our heads, in proportion as we penetrate further and further, and learn, that our longings, aspirations and hopes, as well as our reason and conscience, are calling to us, as eternal truths, man is a citizen of two worlds, the earth, and the heaven, of which Jesus says, "In my Father's house are many mansions."

Are these difficulties, namely, ignorance respecting our connection with the body, and upon our connection with the other world, which are based upon our necessary ignorance of man—are these difficulties to break down a faith which singly solves a thousand greater difficulties, and does not leave our existence without a purpose, our sorrows without any explanation, and the divine unity within our hearts—the triple voice of Virtue, Truth and Beauty—a trinity of tormenting goddesses, three frightful contradictions.

From the shapeless thread-worm up to the beaming human countenance, from the social chaos of primeval days to the present age of the world, from the first movement of the invisible heart up to its strong full beat in the youth, there is a divine protecting hand, which guides and supports the inward man, the child of the outer, which teaches him to walk and speak, educates and adorns him; and for what? Is it that when he shall stand, a beautiful demi-god, upright and lofty, among the ruins of his shattered corporeal temple, the arm of death may smite down the demi-god forever?

And upon the infinite sea, where the smallest drop of water originates an immeasurable circle of movement, has a life-long ebb and a life-long flow of the soul no result except the end of all results—annihilation?

And inasmuch as the spirits of all other worlds must fall and perish for the reasons which prevail with those of this; and since of the over-full immensity of shrouds and of bridal veils upon this earth nothing is to remain except this ever-sowing and never-reaping spirit of the world, watching while one eternity mourns over another:—therefore in like manner the spiritual universe must be destitute of any aim or end; for this would be a course of development entirely objectless, being expended upon ephemeral beings existing in succession within the universe; wasted upon mortal beings in the midst of immortal ones; objectless for all such of these ephemera who were dead, and most of all for the last in succession of them. But this is an impossible supposition.

And all these contradictions and riddles, which break up all harmonies and all strings of creation, must be received, if we doubt or disbelieve in immortality, merely for the reason that we are aware of two difficulties, which the theory of our annihilation does not solve, either!

Death is noble.

Behind its dark curtain, death completes its silent work, and prepares us for the other world; and we mortals stand with eyes wet, yet stupid, before the supernatural scene.

JEAN PAUL RICHTER.

— Death is the crown of life;

Was death denied, poor man would live in vain;

Was death denied, to live would not be life;

Was death denied, even fools would wish to die.

Death wounds, to cure ———

The King of terrors is the prince of peace.

When shall I die to vanity, pain, death?

When shall I die?—When shall I live for ever? YOUNG.

Lift thyself, my soul! Escape from thy slavish burden! Rise upwards thou immortal! Be great, and feel thine own dignity! It is that of a God, and of a tribunal. Therefore, my soul, sink not down amongst the dust of the earth!

Canst thou, who raisest thyself to the inaccessible stars, and with lofty courage piercest deep into the immeasurable, who dost always rise and never fall—canst thou, the soul, an emanation of the life of God, ever utterly perish?

Shall death destroy a spirit which penetrates such depths, rises to such heights; a being which conceives of its creator, a will which honors Him, a heart which trains itself in virtue, and which loves Thee, thou Infinite Being?

And does no flaming judgment fall upon sinners who hate Him? Do thy thunders not fall upon the sinner's head? Shall the fool live in superfluous abundance, while wisdom, like Lazarus, shall beg while living, and then die?

Is truth only a game, a sport for this life? Are our moral feelings only given to torture us? For vice will prevail forever, if virtue is never to conquer, never to find any Savior.

Arouse thyself, despairing soul, from thy fearful death-shudder! Even thy skepticism testifies to the immortality of the soul! And every solicitude which tortures thee, and every happiness which thou lackest, loudly proclaim thy nobility.

Shall God, who created every being, to increase the glory of his creation, destroy the soul, the master-piece of his power? Let doubts assail thee as they may, God is the only being who can destroy the soul, and He will not destroy it.

SCHUBERT. (*Poem.*)

As fanaticism is a disordered condition of the feelings, so is unbelief a disorder of the understanding. In violation of the laws of God, it usurps the dominion over the reason, which only ennobles us to the rank of men, of the image of God, and leads us to the knowledge of God, of His will and of our own immortality; and because it can not hear what is eternal with the bodily ear, nor see it with the bodily eye, nor lay hold on it with the hands, it asserts with mournful self-deception, that it is not true.

Those who doubt or deny the eternal dignity and destiny of man, are like a savage who, never having seen a village in his primeval forests, comes into a great city, and indeed wonders at its public places, its splendid streets, its rich palaces, but will not be convinced that it is an architectural work, but remains fully convinced that the city, like his own forests, grew out of the earth.

I live forever, even though my body dies; else life would be torture. The soul passes to a better world; to pleasures without number. This sweet presentiment comes from the Lord of life; He hath not given it to me in vain; I see my higher destiny.

In nature's realm, not even the smallest particle will be lost. Fool! dost thou then hold man's soul to be only the spoil for annihilation? He who hath given us being will maintain what He gave. He will create life out of destruction, and will raise its germs even out of the grave.

I live for ever! I incessantly feel an impulse towards activity; and although I strive with all my powers, yet I never reach my aim. Wherefore have I this courage, this striving, this germ of higher powers? Is it for this span of life? How petty! How perplexing!

Here, the mind struggles for truth and for light; yet delusion and error hem in the seeker's path. He can not reach them here, for so much must remain unknown to him. Ah, this thirst for truth will certainly be quenched, there, where the fountain of wisdom flows purer.

How often, here, does the real lover of man lament; misunderstood, persecuted, disgraced; while the wicked enemy of virtue, in happiness, lifts high his insulting head. But throned there, above the stars, He will one day hold his court; and virtue will be rewarded in a better world.

Therefore I rejoice, and my whole soul glows, filled with higher aspirations. Even at the grave sounds high the triumphant hymn for the joy soon to come. I know in whom I have believed; I know what God hath promised to me. Lifted above the dust, my spirit is immortal.

Thus dies the meadow herbage, in its winter sleep, and the leafless trees. The spring returns and the fields bloom again, and the forest assumes its crown. O beautiful picture of life, thou meadow in spring garments! My head shall also be exalted in the spring of eternity.

Immortality, thou belief who dost inspire the souls of mortals; who in trouble dost disperse the darkness of grief, and liftest him to heaven; Thou dost beam upon me with more light and warmth than the sun! My happiness and my pleasure, thou art all my pride. *Anon.*

As Kepler discovered in the lower realms of nature, the universal laws of gravity and attraction, which influence all things, so did Kant discover a similar cosmical law of morals in the domain of the intellect, which like faith in God, raises our conviction of our moral dignity and eternal destiny above every doubt.

As visible and mental nature are only two sides of one and the same nature, so are the laws of the former reflected in the latter, and those of the latter in the former, and both reveal themselves to us as equally eternal. Thus moral certainty is as impregnable within its sphere, as in the department of mathematical ocular intuition, the propositions that the circle is round and the square quadrangular, and that twice two are four.

Thus, however children in understanding may doubt it, in their delusions, and because they can not comprehend it, there abide these three, faith, hope, charity, even as the apostle says

Kant's experiences are true:—

"Duty, thou great and lofty name: who dost not reach any desired object by insinuation, but requirest subjection to thyself; yet threatenest nothing to stimulate natural aversion, or to terrify; who dost only set forth a law which is of its own power assented to by the feelings, and exacts, in spite of the will, reverence if not always obedience; before whom all the passions are silent, though they may be in secret conspiring against Him who is thy appropriate origin; and in whom man recognizes the primary source of that noble descent which proudly rejects all connection with mere inclinations, and a deviation from which source is the indis-

pensable condition of that worth which only man can work out in and for himself.

Nothing can be less than that power which elevates man above himself considered as a part of the visible world; which connects him with an order of things conceivable only by the reason, and including both the whole visible world, and also the empirically determinable existence of man in time, and the totality of all final causes—which totality alone is adapted to such an unconditioned practical law as the moral law.

This power is personality; that is, freedom and independency from the mechanism of collective nature; a condition, however, which is to be considered one faculty of a being subject to a law pure, practical, and peculiar to itself, as being prescribed by its own reason, and whose person, as a part of the visible world, is thus subordinate to its personality, as far as they are both comprehensible. Thus it is not to be wondered at if man, as belonging to both worlds, should regard his own being, considered in relation to its second and higher destiny, no otherwise than with reverence; and should treat its laws with the utmost respect."

*Critique of Practical Reason.*

As the astronomer can by the known laws of physical nature compute with unfailing certainty the beginning of the eclipses of the sun and moon, the appearance of comets, the transit of planets, and even the greatness and distance of the different heavenly bodies, and their paths, in like manner may be discovered and laid down, by the moral law, the great and universal law of the moral world, the destined immortality of man.

To prepare him for this, as the highest of all possible destinies, must be the main problem of education.

High above me, Thy starry heaven, and thy Law, O most Holy, within me, lift my spirit above the uproar of this earth, and raise it in devotion to thee; and my astonished mind, O Infinite One, glows with the holy feeling of prayer.

A sense of my dignity as a human being impresses Thy holy law upon me; and even under the burden of this earthly life I feel the nobility of my human existence, whenever I fulfill with zeal and competence the requirements of Thy law.

I ought—I will love whatever is good, not because in this life every virtuous deed receives a reward, but for the sake of the intrinsic excellence of virtue. It raises the spirit high above the grave, and time, and inspires us with faith in immortality.

To subject to himself whatever is unreasoning, and to govern the same, freely and according to his own laws, is the ultimate object of man; which also is, and must ever remain unattainable, unless man ceases to be man and becomes God.

It is part of the idea of man, that his ultimate final cause should remain unattainable, and that the road to it should be an intimate one.

Also, it is not the destiny of man to reach this end.

But he can and ought to approach ever nearer to this object; and therefore this approximation towards it, during infinity, is his true destiny as man—that is, as a reasonable and free being.

If now we call this complete agreement with himself "perfection," in the highest sense of the word, then to perfect himself to infinity is the destiny of man.

He is placed here to become continually morally better, and to render everything about him corporeally better; and—if he be considered as a member of society—morally better also; and thus to make himself always happier.

FICHTE.

The flame rises upwards from the altar, as do a thousand sister flames; as if they would escape from the gross and dark matter to which they are bound down.

Thus is the soul always longing; the divine spark ever tends towards its home, high above the dust and sorrows of earth, where the moon and stars are wondrously shining.

Ah, with what a cloak of dust is it covered in! It will one day throw aside its clayey bonds, and even now it feels itself a stranger here. And when these bonds are loosed, our inner nature will liberate itself; the ashes will sink down, but the heavenly flame will be freed.

SCHOTTIN.

Small is the sphere of man upon this planet, but great the problem which his ennobled heart proposes to itself: to believe itself created, not for itself, but for all; and, penetrated with a consciousness of God's moral order, which, equally with the soul, is the rule to which the government of the world is adjusted, to labor as God does, but within the circle of its earthly being.

In every situation, this spirit can be kept in activity; and though our fate should confine us within ever so narrow a sphere, no fate can deprive us of our sentiments.

Even in him who is closed up and cut off from all practical influence upon the world, his enthusiasm may flame up in a thousand noble wishes for the world and for humanity: and such wishes will be reckoned as deeds before the tribunal of the Holiest.

HEYDENREICH.

Suns shine, earths roll throughout the wide halls of the universe; and nature is infinite. All the worlds sing psalms; in the sun, and in the grass-leaves, we discern the plain traces of eternal wisdom. But nature only obeys the law, without any will. Man! thou art more than a whole army of motionless worlds.

God hath given thee freedom; and freedom gives thee wings to rise upwards, and power to approach towards what is better. In this external body, built of clay, dwells a free will, a heavenly gift, the ennobling trait of humanity. Through this thou canst boldly struggle up the steep path which leads you to the choir of superior beings. By the help of this thou canst hasten towards the destiny to which God, thy God, calls thee.

Thou givest light to the sun, and to the worm his brief life; to us, freedom and immortality. Father! Thou shapest the worlds, thou formest our spirits to virtue, and trainest them for eternity. The great work is thine, to which we devote our life. Let us with boldness, made free by virtue, always true to duty, press towards the palm of perfection.

Even man himself is at first to be considered as only a plant. (*Poem.*)

Before he sees the light, he has no other life, so far as can be ascertained, than the monotonous vegetable-like life which, by the divine law, draws to itself materials for nourishment, assimilates and uses them.

But as soon as the child looks upon the light, he is more than a plant.

He at once feels pain and pleasure, and his crying is audible. Soon, his mother rejoices at his first laughter. He looks about him. His eyes look with most pleasure towards the light. His pleasure shows that he is not destitute of judgment. He has a soul.

The mind of man is so entirely different from the earthly part of his being, that it can not enter into any relations with his bodily part, except through the medium of that soul which he possesses in common with unreasoning beasts.

In the child, the future man, it is the earthly part that is first developed.

After this, there appears the activity of the animal nature or soul.

Lastly, as highest of all, and to which all are subservient, appears the mind, the living and self-conscious I, which with wonderful and divine light shines through all the faculties of the soul, recognizes whatever is around it, penetrates the universe, and comprehends its derivation from God.

As the body is the vehicle and the coarser instrument of the soul, so is the soul the vehicle, the finer instrument, the immediate garment of the mind.

As the soul, through the nerves, pervades the whole body, so does the mind, like a holy light from heaven, pervade the existence of the soul, and of its faculties.

Who could place a holy wise man, or even a child of a few years old—having reference to his high mental endowments—in comparison with a beast, however old, cunning, or intelligent?

The beast, having only an animal soul, and being governed only by habit and desires, is incapable of human speech. The speech of man is the exclusive property of man, the work and the fruit of the mind.

Even the most cunning beast lives in an unintelligent consciousness, led by dim impulses, ruled by desire of pleasure or fear of pain, surrounded by obscure pictures from his experience. His best services are, dumb and useful habits.

Their faithfulness and love do not properly deserve these exalted names of virtues to which they are strangers. These qualities are only instinct and force of habit; not conviction of duty and right, not respect for what is good and noble.

The utmost skill displayed by a bird in hunting after its food, or in passing to an unknown region in autumn, or in finding its home again in spring, is no more wonderful than for the new-born human child to seek its mother's breast.

And however intelligent are the constructions and labors of bees and ants, their art is no result of their own reflections, but that of blind impulse.

It is entirely otherwise with the activity of men, and their acts.

The human race has for thousands of years been incessantly progressing in perfecting its condition.

Men lived at first in forests and caverns, then frail huts; now they erect splendid palaces, filled with all the luxuries of life.

Most of them wandered, naked or half-clothed, in dread of wild beasts; now they go protected by clothing against the inclemencies of the storm, guarded by the weapons they have invented, and are the terror of wild beasts, and the lords of the earth.

No country is too distant for them, no mountain too high. They sweep over oceans, seas and rivers, though without the nature of a fish; and without being furnished with wings, they raise themselves to the highest air of heaven, where the eagle can scarcely penetrate. They pierce deep into the dark bowels of the earth, where no worm is found, and there they seek the treasures of nature, to satisfy their manifold necessities, and to become more fully acquainted with the splendor of creation.

But all this is the product of the mind, that spark from the divine source of all light.

It is the mind which gives to man all his elevation above whatever else lives within the realm of nature.

It is the mind which makes him competent not only, like animals, to collect, arrange and compare single experiences, but also to preserve and make a practical use of the collected experiences of many thousands of past years.

It is the mind which, by means of its truly divine power, collects a



thousand different phenomena under one single comprehensive idea, and out of the theory of innumerable thoughts, constructs for itself as it were an inner world full of unity, order and clearness; and thus acquires more knowledge than the whole visible world and its experience of thousands of years could tell.

For, like the spirit of God over the waters of creation, he moves over all created and visible things; he belongs to a higher world, from which he looks down upon what belongs to the dust. He is nearly related to the Most Holy, shaped after the image of God. He bears the marks of his divine origin; his mind reverts to God; he lifts his gaze to the infinite; he speaks, and prays, to the Creator of the heavens and the earth.

Of all this lofty super-sensuous life, the unreasoning beasts have no conception. Nor have they any of the object of their existence, or of the attainment of any greater perfection and happiness than what consists in the satisfaction of mere animal desires; none, of any previous ages; and still less of an eternity, or of an infinite existence.

The plants, without sensation, cohere to the earth, bound fast by their roots. The animals creep or walk or fly about the earth, to which is owing the entire sum of their enjoyments.

But the human soul sees clearly past all the complications of life, searches after causes and effects, battles with the power of the elements, and often overcomes them; dams in the floods of the ocean; and controls the lightning.

The eye of animals is blind to the beauties of nature. But the mind of man, enraptured with the splendor of the works of the Creator of the worlds, examines the beneficial powers of nature, investigates the peculiarities of animals, and penetrates throughout the endless spaces of the world's edifice.

ZSCHOKKE.

How great and wonderful, O God, appears man, thine image! How nearly, filled with thy spirit, is he placed to the angels! How hast thou lifted him up, and adorned him with majesty! Thou hast thyself called him Lord, and hast given the scepter into his hand.

Even the young sucking child bears the impress of thy wisdom. His stammering and laughing are, O thou holy Creator of nature, a beautiful song of praise, a sweet melodious thanksgiving to God, throned high in heaven, and yet dwelling among his human creatures.

The powers of men unfold themselves progressively, along the pathway of life. He realizes great thoughts in great deeds; land and sea are subject to him; and he cries out aloud in his rejoicing, "God loves me more than moon and stars. I call their master my Father!"

I am inspired by his spirit. They roll blindly along their path; but He has called me, chosen me, to look in freedom up to heaven. And I do not even need the light of the stars. For when all my senses shall fail, my spirit will still exist forever.

If we were made to tend as the magnet does towards the pole, with eternally vain endeavors, towards a point of perfection beyond us, and which we could never reach, we might justly mourn for ourselves, as blind machines, and also for the very existence which should have condemned us to such a tantalizing fate, and should have made our race nothing but a mere maliciously and ungodly created object of derision.

If we consider man as we know him, according to the laws which lie within himself, we shall find that we know nothing more lofty than the essential humanity of man; for even if we figure to ourselves angels or gods, we conceive them as ideal men.

For this object, this human character, is our nature organized; for this purpose are given to us our finer sensibilities and impulses, our reason and freedom our health our language, art, and religion.



In whatever social condition, man is bound to seek nothing else, can properly endeavor to organize nothing else, than this humanity, as he understands it.

To this end did man invent various laws and forms of government; to this end is property protected, and labor, art, trade, intercourse, facilitated; to this end are wars waged and treaties made.

In all the organizations of nations, from Sinai to Rome, in all the varieties of their constitutions, in their war and peace, even in all their crimes and faults, is recognizable the chief law of nature, "Let man be man! Let him adjust his own condition according to what he recognizes as best!"

So simple is this natural law; so worthy of God; so concordant with the human race; and so fruitful in good consequences to him.

If that race is to be what it is, and to become what it may become, it must possess a self-acting natural realm about it, and an area for free activity; and this must not be interrupted by any phenomenon of a nature strange or unaccountable to it.

Man can not live and maintain himself, if he does not learn to use his reason.

As soon as he begins to use it, it is true that a gate is opened for him to a thousand errors and mistaken attempts; but a road is at the same time found—even by these very errors and mistakes—to a better use of the reason.

HERDER.

All those mental characteristics of man, which he develops in art and science, are by no means the loftiest.

The divinest quality of the human soul is its aspiration after what is divine, after a union with the Holiest; its struggles after a perfection and completion, which are entirely independent of everything earthly.

It finds no rest, except only in what is true; no pleasure, except in what is right.

It is penetrated with an inexpressible reverence for what is beautiful, noble and virtuous; and is full of natural repugnance to untruth, to viciousness, to imperfections of every kind.

An animal may have understanding; but only men possess that higher reason which is the lawgiver of holy and upright actions.

An animal may possess cunning, but is not capable of wisdom; which is a peculiar property of the human mind.

Man alone stands midway between the earthly and the super-earthly; between the finite and the infinite; between the lifeless material world and the Divinity which is the life of all things.

His foot is on the earth, but he carries his head held upwards towards heaven.

The body is only the instrument of his mind.

The bodily nature has one law, for the maintenance of itself; the soul another, in its feelings; but the mind has a higher one—the mind, whose vocation is to eternity, to unending perfection, or happiness.

ZSCHOKKE.

The most important presupposition of pedagogy is, the living powers of the soul.

These should not be forced. They must make themselves master little by little, of whatever they need to use or possess; they must digest and obtain firm possession of original ideas, if they are to reproduce beautiful representatives of them.

These powers are not unknown to us. They are the spirit of God, the Holy Spirit; the creating power of the Almighty, revealed to us, yet working, spreading, forming, everywhere and in obscurity.

To educate is, to develop these powers in freedom; that is, according to the laws of God; to give them according to God's will; to ennoble them; to make them like God.

But this high vocation is possible, again, only through the aid of the divine power, and with its blessing.

Without it, all teachers, preachers and educators, are merely chemical cooks.

Pedagogy is no science and art of making good men; it is to guide children so that they shall become such, through the assistance of God.

But this capacity of becoming such, presupposes an innate, assimilating power. EDWIN BAUER, *Teacher of the exact sciences in Zwickau.*

Despair not, thou shalt arise again—the nobility of humanity is too great. From eternity the lot was destined to thee to rise up again, elevated and purified; and even though mighty hands of wicked men have sworn to defile thy excellence, they shall one day stand unmasked in the sunlight; and shall not conquer.

Here, powers measure themselves with powers, black night with day, one occupation contends with another, impulse strives with duty, systems contend with systems, and the blood and tears of men stream, for lofty rights and truths—and also for those who violate them.

What is it which inspires your aspiration for truth, justice, nobleness; your weeping of hot tears after full perfection? What elevates heroes, teachers, judges, lofty thinkers, poets? What is it that glows in every feeling, and ennobles the efforts of our arts?

Oh, it is presentiment; a faint breath, a rapturous foretaste of the loftiest height of your own worth; a glimmer of the brightness of your destiny. Before your wings have their full sweep, it is true that the grave-mound must cover us. Yet we still aspire; and they will stretch themselves out and be borne victoriously upward.

On the altar of thy temple burns brightly the holy light of the soul. And whoever sees the flame ascending shall neither tremble before its blaze, nor—filled with error, strike it down. The whole of that temple is illuminated in which brethren on their knees, are filled with holy things.

Then shall reason grasp with stronger and firmer right, his leading-staff; then shall disappear every night of error, and all chains shall fall away; while harmony, with sweetest song, shall bless the welcome peace; a peace which no fates shall interrupt; for it is protected by the diamond shield of duty.

Triumph, O brethren! Let us struggle, and never pause nor rest; let us do our utmost to release whatever is confined by human force. Then the captives, with powerful wings will fly upward, leaving a blessing upon our graves. We shall be aspiring to a more brilliant path among the stars, and they will be approaching us.

O life, namelessly sweet! We proceed from the bosom of humanity. Man will assuredly elevate himself, for such is the lot destined for him by the creator. O brothers, brothers, see them struggle! Triumph! They rise, they soar higher and higher! We shall see them in the starry path, approaching nearer and nearer to the stars! STARKE. (*Poem.*)

If we should draw a map, with a sky-blue ground, and gold stars of different kinds to indicate the various kinds of educational institutions—academies, universities, seminaries, and so on, down to common schools—and such a map would be much more worth the trouble of making it, than one on which near every town should be marked with a blood-red line the battles fought there—we should see a most splendid map of stars, upon the field of the mental activity of our race. And if this plan should

he followed out for all countries, we should have a most interesting collection of maps of the condition of human nature; and should be astonished at the multitude of means of education among enlightened nations, as we are upon gazing at the starry heavens.

And if we should sometimes find a region poor in stars, or quite destitute of them, still we could not look upon such a map without becoming firmly convinced that the destiny of man is a great and magnificent one; and is, to attain through truth to virtue, through virtue to happiness, and under the guidance of the latter to a perfection higher and higher to infinity.

The nobility of the human mind reveals, in the first cry, that independence which appears in its mode of opposing itself to impressions, without either coming into collision with them, or permitting them to pass by with a merely superficial notice.

From this source proceeds our consciousness, and that inviolable harmony which is the holy spring of eternal life.

If you would not realize the apprehension that this independence may be lost in the external world, or may sink into egotism, or may fall into one-sidedness of feeling, seek for some counterpoise against those bad tendencies, the earlier the better; and to your course of training, proceed with reference to the inner harmony of the life.

The child should grow up, that all that is good, great and glorious may establish itself in him; and may blossom out into happiness, through love, that inward fountain of humanity, which is the true means for training a child.

The whole earthly existence should be the development of fitness for a brighter world.

This is the design of God, in the laws of our nature, and in our freedom.

And thus will grow the tree of humanity.

There exists in man a spirit which tends to cut itself free from nature, and to look above the earth. Thus it is that we become perfect; thus, in the loving child, we see the future angel.

This is the destiny of man.

The highest result of human training is thus, that the spirit of each individual shall appear as an individualized separate spirit; and that in education, this same spirit, again, should appear as identical with the universal spirit of all of us.

SCHWARZ.

Man is *the* being, of all earthly beings.

A spark of the light and power of God, (Genesis, i; 21,) he bears within himself, in this world, heaven and hell.

Whichever of these he awakens, burns within him.

If we make angels of ourselves, we become such; if devils we become such.

We have life and death set before us; we may choose whichever we will.

Each of us can go whither he will; for man is free.

God is in heaven, and heaven is in man.

But if man is to be in heaven, heaven must be revealed in man.

The right road to come to God is, so far as we are capable of distinguishing it, for man to come out from his admitted sins.

JACOB BÖHME.

It is difficult to avoid being enthusiastic in considering the great thought, that, just as all sciences, not even excepting the empirical ones, are always tending more and more towards a point of complete unity, so will humanity itself ultimately realize, as a constitutive law, that same unity which at their beginning of their history was a fundamental forma-

time rule; that, just as all the rays of human knowledge, and the experiences of many centuries, will at last gather into one focus of truth, and realize the ideas, which had already occurred to one and another great mind, so that at last all the different sciences will be only one, so the different right and wrong paths through which men have hitherto been straying, will at last meet together at one point, where mankind will gather together again, and as one perfect person will obey the same law of unity.

However distant this point may be, it is still the duty of those to whom such hopes are not folly, to promote this great work, and by united labor for the perfection of the sciences, at least to hasten this great epoch of humanity.

For all ideas must have been realized in the field of knowledge, before they can realize themselves in history; and mankind will never become one, until its knowledge shall have attained to unity. SCHELLING.

If thou wouldst assert thy destiny, O man, forget not that thou art destined to immortality.

Set not thy whole heart upon things which thou must certainly leave, and may leave so soon.

Treat not with indifference things which can and will have a great ever enduring influence upon thy future fate.

Limit not thy desires, thy endeavors, thy hopes, within a moment; for thou mayest look forward to eternity. ZOLLIKOFER.

Dost thou, O man, seek for thy position here below, and thy destiny?

Consult for an answer, both thy reason, and thy experience.

Consider thy race, consider humanity, what it ought to be—what it is.

Consider the savage, and the civilized man; the king, the beggar, the man of worldly wisdom, the Greenlander in his smoky hut.

All assert the same destiny.

When you have collected their answers, compare them together.

We are called by our creator, only and exclusively to be righteous and to be happy in righteousness; to seek after truth, to love beauty, to desire what is good, to do what is best, to pray to God, and to do good.

MOSES MENDELSSOHN.

Lawyers, educators, friends of humanity! Let us unite our powers in order to demonstrate to man that amidst the infinitely varied circumstances of life, he will never find inward happiness except in the actual and efficient unity of his character.

In striving after the attainment of this perfection, following steadily and freely the prescriptions of a universal and beneficent reason, he will escape from errors, crimes, and self-accusations.

As man and as citizen, he will find happiness in the testimony of his own conscience.

Thus will man bring the infinite variety of his susceptibilities, thoughts and endeavors, into the unity of a true, pure and efficient moral character. C. VON DALBERG.

If we consider the undiscovered mystery in the nature of man, that is, in one side the consciousness of our gradual development and sinking back again into weakness and earthly nothingness, which follows as closely, even in the period of the fullest life, and on the other side the unmistakable presentiment of a higher destiny; and also that mysterious and undiscoverable spirit which, we do not doubt, is what keeps the visible organism in motion, and which is so closely connected with it and yet so distinct from it; when I consider these things I am continually

filled anew with the conviction that the altar of truth is the proper central point of the city of God, to be citizens of which we ought to educate our children.

FRIEDRICH JACOBS.

Where there is death, there is also life; yea, all death, throughout all nature, is only a new birth.

Therefore all representations of death are also representations of life.

How softly does the sun sink' down and cover itself up with purple clouds!

But see; when the night is past, then the day rises rosily again in the east, and looks wonderingly again upon the earth which it left only a few hours ago.

See here, O man, thy likeness and thy fate; and grieve not.

The hopes with which every evening passes into the dark night will not deceive thee. If they could, thou wouldst not have them.

Thou wilt not long feel the terror of the winter and of the night, for thou slumberest only to awake again in the morning, amidst the flowers of an eternal spring, and greeted by sounds of holy pleasure. NABBE.

In the belief of a personal immortality is given to our earthly being a significance, a substance, an interest, a purpose, and fixed point of action, without which our life could have no more significance and substance than that of a beast or of a plant.

In this belief, it is worth our while to struggle after mental and moral perfection, even if the next moment were to be the last of our earthly career. Without it, all our moral and mental attainments would be mere imagination and utterly unsubstantial.

In this belief, man can have good courage to throw himself into life, to endure, to suffer, even to offer up his life for truth, right, and morality. A steady star of hope shines upon him. Without it, there would be no moral power, no permanence in a moral life, no permanent dignity of character.

In this belief, lastly, the whole creation assumes a connection and an object; I know for what I am born a man. Without it, we stand before a chaos full of perplexities and contradictions, in which are contending heterogeneously with each other, endowments and power without an object, requirements and rights without dignity or realization, hopes and wishes without any prospect of fulfillment; and in which the element would be entirely wanting, which is required to bring these confused constituents into unity.

Whatever the human race is, that it is through faith in personal immortality.

This faith, which is as ancient and as wide-spread as is the human species, this faith, which was not invented by selfishness and seized and propagated by an unscrupulous priesthood, but which is an essential constituent of our nature, is the germ from which all human culture has developed, and has drawn constant support.

Were it possible—which for the salvation of mankind it is not—to drive this belief utterly out of man, so that no trace of it should remain, the result would be to unhumanize man, in the fullest sense of the word, and to drop him back into the class of animals.

Even Goethe says, "Why should not my faith have a divine origin, and a real object; since it approves itself practically so efficient? It is in the practical that even our own individual existence first becomes certain!"

HUFFEL.

(To be continued.)

## II. VALUE AND ESSENCE OF A GOOD EDUCATION.

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Harmony, the ultimate object of all things, should exist as in the universe, so in man also, who is a little world in himself.

The harmony of the heavenly spheres should be echoed in the soul of an educated man.

Since it is thus that man attains to the comprehension of the absolute relations of the created world, and of heavenly beauty, he comes into a constant connection with God.

It is to this end especially that education should be directed; which requires:

1. That youth should not hear of anything which may awaken unchaste desires, until they are acquainted with the dignity and loftiness of human nature.

2. That youth should endeavor to attain a ripe development, by means of effort.

3. That parents are the proper educators; and that it is therefore the greatest injustice to separate parents and children.

4. That education should extend over the whole period of youth.

PYTHAGORAS.

Man becomes what he is, principally by education; which pertains to the whole of life.

In education there is a union of watchfulness over the progress of training, and of a course of discipline for intellectual and bodily development.

Education must begin even before birth, with the parents themselves; must constitute a rule of action during the entire life and in a certain sense must exist during the whole of it.

By a good inward and outward education, the best endowed natures are developed; and such as are superior to any that preceded them; and in their turn they will bring up still more excellent ones.

The name of education is not applicable to a system of instruction in methods of gaining wealth or bodily strength, or in any mechanical knowledge, without the intellectual or moral element.

A person may be well trained to seamanship or to a trade, and may yet have no true education.

Only those who are educated in mind and in will, become good. Such take pleasure in becoming good citizens, who will either govern or obey in righteousness; they become noble men, who go forward and train themselves in whatever of perfection is yet deficient.

True education is the most desirable of all that is good; and therefore should not be neglected.

In the soul of man, good and evil lie near each other.

If the latter, for want of education, gets the upper hand, the man falls beneath himself.

But education, which promotes goodness, raises him above himself.

It is by education that the man first becomes truly a man. PLATO.

As long as the youthful mind has gained no moral strength, it should be kept as far as possible from intercourse with the world; for its sins contaminate the inexperienced.



In like manner, children should not attend plays; for there vices will creep upon them most easily, by means of wanton representations.

Pupils should often exercise themselves in contemplation.

The body should be trained with some strictness, in order that the mind may not become refractory.

It is good for the young to select some one noble man for a model.

But young people should not remain too long in this simplicity; for it would become a means of betraying them into evil.

To tell the truth to those in fault should not be omitted. For knowledge of one's faults is the beginning of improvement.

And even where the truth appears to find no entrance, the heart often feels it.

For noble souls, labor is nourishment.

It is not enough to have begun our education; we must also continue it.

It is better for a young man to be serious, than to be fond of pleasure and a favorite in large assemblies.

For it is with young people as it is with wine; that which is sour when new, acquires a fine flavor by age; but that which is sweet at first, becomes sour.

Noble minds are easily excited by what is noble.

It is not important how many books are read, but how valuable.

In order to assist the weakness of children, they should often be spoken to in similitudes.

We should endeavor to reform depraved wills.

The mind should be drilled, as much as the body.

If instruction in wisdom and virtue is to find a good soil in the mind, delusion and error must first be driven out of it, and the understanding must be cultivated.

Just as leaves can not grow green by themselves, but must have a twig through which they may draw sap, so even the best precepts fail, if they stand alone, and are not based upon fixed principles of education; that is, upon the knowledge of what is right, and consistent with virtue.

Goodness in man can not be developed until his reason has been trained.

SENECA.

It has been asserted that what education can accomplish is little; a grain of salt cast into the stream of life, and rapidly disappearing.

But the truth is as a Greek philosopher presented it; who took two young dogs from the same mother, and let one of them grow up without training, but taught the other; and then exhibited them both to the people. The former, who had been taught, instead of eating the food placed before him, chased a wild animal which was let loose, and secured it, while the other one fell upon the piece of flesh and devoured it like a beast of prey.

Even if education accomplishes no wonders, it can do much—very much.

Pride in talents which acquire everything as it were spontaneously, is foolish; for this early ripening is a sign of approaching death; that such learners have become mature before their time.

QUINTILIAN.

Excellent was the saying of the Lacedæmonian educator: "I will teach the boys to take pride in what is good, and to abhor what is shameful."

This is in truth the most beautiful and noble aim which man can have in education.

PLUTARCH.

The remark was well founded which Crates the Theban was accustomed to make, that if it were possible, he would stand on the highest place in



the city, and cry out, with all his power, "What are you thinking of, you people, that you are devoting all your industry to the acquirement of riches, but take no care at all of your children, to whom you are going to leave them?"

I might add, that such a father behaves like one who bestows all his care on the sandal, but neglects the foot above it.

PLUTARCH.

The children of the Persians were from their earliest years taught the love of justice.

Thus, as the children in the schools of Greece were trained in the knowledge of learning and liberal arts, the children of the Persians attended their schools for the sake of learning justice.

In order to accomplish this object the more quickly, it was not thought sufficient to accustom only their ears to instruction in justice, but they were taught to give just opinions on all matters which came up among them, and to fix upon the proper punishment for every error.

Thus the teachers, as public instructors in justice, devoted a large part of the day to hearing and correcting these opinions of the children.

XENOPHON.

The pre-eminence of man over the other living creatures of this earth consists in this: that he can recognize something higher and better than himself.

He becomes what he is, by nature, habit, instruction.

The last two, together, constitute Education, and must always accompany each other; the former, however, preceding.

Instruction has an inward purpose; for it is beneath a noble nature to inquire into the usefulness of what is learned.

Education is to prepare the mind for instruction in morals, as men prepare the soil before sowing seed in it.

Only when the mind has become noble and inclined to goodness, can instruction in morality be given with advantage; it is only when good habits already exist, that principles can exert their ennobling influence.

He who can command, must first have learned how to obey.

The training of youth should be a concern of the state.

Crying is a useful exercise to children.

Children's plays should be representations of their future occupations.

Education is an ornament in prosperity, a refuge in adversity.

Parents who secure a good education to their children, are more useful than those who merely beget them.

The children of such parents owe them not only existence, but an honored and happy existence.

As the eye receives light through the surrounding atmosphere, so does the soul through instruction.

That scholar makes good progress, who follows after those who precede him, and does not wait upon those who linger behind him.

ARISTOTLE.

As once Surdarana, a noble Indian prince, sat on the bank of the Ganges, he heard two sayings, of which one praised the excellence of wisdom, and the other was, "Youth, abundance, high birth, and inexperience, each in itself, are sources of destruction. What must be the lot of those who possess all four?"

And the king reflected within himself, "What is the use of a son neither learned nor virtuous? and what is the use of a blind eye?"

A child with capacity and talent is a blessing; but not a hundred children who are corrupt and ignorant. One moon disperses the darkness sooner than a whole troop of stars.

Fathers and mothers are the enemies of their children, if they do not

cause them to be instructed; for a man without knowledge remains without fame, then if he possesses youth, beauty and high birth; he is like a blossom without fragrance.

Like the glitter of the eastern mountains in the light of the sun, is a man of low birth, influenced by the stimulus of good writings.

Youth should avoid evil company, for by it they become corrupted, as sweet water becomes undrinkable by mixture with the ocean.

Education is of higher value than beauty or hidden treasures.

It accompanies us in traveling through strange countries; and gives us inexhaustible powers.

A man without education is like the beasts of the field.

Amara Sukti, a learned king, had three sons, without industry or talent.

Considering this fact, their father called together his council, and consulted it as to the means for cultivating their minds.

Then one of the council answered, Since life is short and learning is long, it is necessary to consider how to abbreviate the road of learning, and to bring the substance of it into a compressed form.

Thus must the essence of learning be acquired: as the swan draws milk from the water.

*Indian Tale.*

Since complete happiness only comes with advancing years, for the reason that then only can we co-operate in producing the happiness of others, no reasonable man would wish to pass his whole life in the condition of childhood.

Since every art, and all instruction, is intended to supply what is wanting by nature, the general problem of education is, to develop children, as imperfect beings, into perfect ones.

Therefore the neglect of education is most harmful to the state itself; since the maintenance and well-being of the state depend upon it.

The best laws are of no use, if the citizens are not morally and intellectually developed.

The best natural endowments will always produce the best political constitution.

But aside from this, it is a shame not to have been educated; for he who has received an education differs from him who has not, as the living does from the dead.

The object of education is to train children, and others who need it, that they shall learn to know the beautiful, and shall be instructed in everything that is necessary and useful.

The citizen must be morally good, and be capable of noble deeds.

Therefore, the domination of the animal passions must be broken down by the laws.

Reason and understanding are, in man, the aim of nature.

The understanding must be trained through the heart.

Right education consists in this: that men should from their youth up be accustomed to be rejoiced and afflicted as reason requires; and above all, that the lower part of the soul be in subjection to the higher, the reason.

A sound and well trained mind, in a sound and well adapted body.

All art, all education, should be only complementary to nature.

The better part of man is the reason; which must therefore be the chief object of education.

Only he who lives in accordance with his nature—his reason—and entrusts to it the care of himself, and thinks and acts in such a manner as is worthy of a reasoning being—only such a man is pleasing to God.

Since the gods concern themselves about men, it follows that the noblest

part of man, the development of the mind and of the moral feelings, is especially near their hearts.

With men to whom this better portion of human endowments is denied, education is wasted.

It can improve nature, but not completely change it.

ARISTOTLE.

There is no living being whose nature is so obstinate and cross-grained as that of man; who has a natural tendency towards what is forbidden and dangerous, and does not willingly allow himself to be influenced.

But these sinful natural tendencies can be improved by wise laws, by a mild and just administration of them, and by an education which unites firmness and love.

SENECA.

When parents, either from avarice or lack of conscience or ignorance or any other cause, neglect the education of their children, the sad consequences which avenge this neglect do not fail to follow.

When sons so treated become men and give themselves up to the most fearful vices, then, when it is too late, the parents who ruined them, experience profound sorrow.

A good education, including proper instruction, is the first, second and last, principal means by which youth become virtuous and happy; and all other advantages, as riches, high birth, beauty, &c., in comparison with such an education, are not worth striving after.

PLUTARCH.

That usual complaint is altogether a mistake; namely, that but few men are by nature endowed with the capacity for comprehending what is brought before them.

On the other hand, it is found that most men manifest ease in thinking, and aptness to learn.

This is an important distinction between man and beast.

As birds have born in them the capacity for flying, horses for drawing, and wild beasts their untamableness, so is the faculty of thinking peculiar to man.

Although one man may possess more capacity than another, yet none can be found who can not by education be improved at all.

Intellectual monsters are as rare as corporeal ones.

Therefore, parents can not give enough care to the education of their children; nor be careful enough to provide them with nurses whose morals are not corrupted.

QUINTILIAN.

The young should be accustomed to obedience, in order that they may find it easy to obey reason.

They should be led in the best pathway of life; and the habit will soon become pleasant to them.

PYTHAGORAS.

Private and public instruction should be connected, as far as possible, in order to join their advantages and to prevent their disadvantages.

Where this is impracticable, the light of a good school is always better than the dark prison of a home education; for the moral character is there in much less danger than with bad domestic tutors, and in an impure and narrow family life. The best teacher experiences a higher sense of his vocation with a greater number of scholars; and one scholar stimulates another; advantages which far outweigh the exclusive devotion of a teacher to a few scholars.

QUINTILIAN.

Man should raise himself, by instruction, to a state pleasing to God, and of true freedom; and to a condition of mind desiring only what is good.

The truly educated man enjoys the most beautiful and delightful results; passionlessness, fearlessness, freedom.

Those who have enjoyed education and instruction, are truly free.

EPICETUS.

To establish the reason as the universal governing power, is the purpose of true education.

For real human life consists in this : to govern all the actions according to reasoning insight, so that our nature shall come into a course of life accordant with reason, which is given us as a guide to virtue.

The highest good and happiness consists in virtue ; the greatest evil in the want of it.

*The Stoics.*

Every one must be brought up, as far as possible, according to his character.

Not, that is, according to its faults, but according to the noble qualities of it.

We ought in no respect to contend against nature.

Each one ought to develop his own peculiar traits (not being vicious) ; and not to endeavor after such as are foreign to him.

His own peculiar characteristics are best suited to every man ; but he must be a strict judge of his own traits and failings.

Especially, endeavors should be made, not so much to acquire qualities which nature has not granted, as rather, to be rid of the faults which each of us is subject to.

CICERO.

The ancients educated their children not merely by talking to them, but also, and especially, by means of examples and actions ; in order that what they acquired might remain in their minds not as a science, but as a nature and custom inseparable from them ; not as a thing learned, but as an inherited possession.

When during a consultation on this point one asked Agesilaus, What children should be taught ? he answered, What they will have to do when they become men.

MONTAIGNE.

Although man is by nature a domesticated being, it is only by education that he becomes the best of all created beings on earth, and the nearest to God.

But if he grows up without education, or with only a poor one, he becomes the wildest of all the creatures which the earth produces.

PLATO.

Man is an excellent being, if he is truly a man.

ÆSCHYLUS.

Reason and understanding are, in man, the object of nature.

To this end must be directed the originating of man, and the establishment of his habits.

Further ; as the body and the soul are two distinct powers, so has the soul itself two parts.

One of these possess reason ; the other none.

Each of these two parts has its own faculties ; one, those of the instincts ; the other, that of thinking.

As the body precedes the soul in the order of time, so does the unreasoning part of the soul precede the reasoning part.

This is easily to be seen, in that anger, obstinacy, and passion, are exhibited by a child as soon as he comes into the world ; but reasoning, and the capacity of thought come with time.

Therefore men must care for the body earlier than for the mind, and next for the passions ; for the latter on account of the reason, and for the former on account of the soul.

ARISTOTLE.

I perceive that you bring up your children quite too tenderly.

Your desire is, to be a good mother.

But, my friend, the first duty of a good mother is, not so much to see that you secure to your children proper susceptibilities, as to accustom them as early as possible to what is the basis of every virtue; to moderation, and the control of their animal instincts.

You must also beware lest instead of a tender mother, you play the part of a flatterer.

Children who are brought up delicately from their earliest youth, must necessarily be unable to resist the impulse of their instincts, which is always so powerful.

It is therefore your duty, my love, to educate your children so that their nature shall not receive any wrong direction. This latter happens when the love of pleasure gains the control of their minds, and when their bodies are accustomed always to require pleasant sensations; so that the latter become feeble and excitable and the former disinclined to all labor and exertion.

Therefore nothing is more necessary than that we should exercise our pupils most, in what they dislike most; although they make sad faces at it and are made unhappy.

There is no surer means of causing them, instead of becoming slaves to their passions and thereby disinclined to labor, and controlled by their animal impulses, to acquire an early respect for what is beautiful and noble, and to enjoy themselves in this, instead of the former.

*THEANO, the wife of Pythagoras.*

"The man who knows himself," says Cicero, "will find in himself traces of the divine; and by conducting as a representation of the divine, will avoid experiencing or doing any thing which may shame this great gift of God.

"When he has thoroughly investigated and rigorously proved himself, he will become aware with what high endowments nature ushers him into life, and how many means he possesses of attaining wisdom.

"Man stands in the world with endowments of mind and soul which, although they rest as it were under a veil, will still in the end, when he shall have made use of their full strength, at the same time keeping wisdom near him as a guide, raise him to the condition of a good and therefore of a happy man.

To bring man to the attainment of this end by instruction and education, is the high task of the educator's art. No other or loftier purpose can be set before him, than to develop the natural man into an intellectual and moral man.

For, this purpose is the promotion of human dignity and the bettering of human destiny and human dignity of human nature; in which the voice of God speaks.

What offers to man a sure guide?

Wisdom only, and alone; a part of which it is, to preserve uncontaminated and uninjured, the inward genius. *M. AURELIUS ANTONINUS.*

We should not only be willing to be of service to the young, but should also not vex them, either by words or actions; but use the best means of teaching them to pray, to be orderly, moderate, obedient, faithful, quiet and truthful; not to curse nor scold, and to keep themselves virtuous in words and gestures.

God's requirements from us are that we assiduously use all means of inducing and protecting the young, so that they shall not become fleshly, ill-nurtured, dissolute persons, as is very soon the case when they are not kept under careful discipline.

For our own experience shows us that youth are like tinder, and easily become too much excited by what is bad and wicked.

Children are put under a taskmaster, that he may instruct them, have care of them, and keep them confined as if in a prison.

But why, and how long?

Shall the severe discipline and confinement of the taskmaster, and this constraint and servitude of the children endure permanently?

By no means; it is to last only for a certain period; until the child is grown up.

This obedience, prison and discipline are for the best good of the child; that at the proper time he may become the master and inheritor of his property, and may rightfully use it.

For it is not at all the intention and will of the father of the child, that his child shall always remain under the taskmaster, and be always corrected with the rod, but his intention is that by means of the instruction and discipline of the taskmaster he may become more fit to manage his inheritance, when he is grown up.

If a respectable man should all his life do no other good thing than only to bring up his child aright in the fear of God, it is my opinion that he would have done enough for him, even if he should never go to St. James' or to Rome.

The greatest work you can do is, to bring up your child aright.

I do not mean that you ought to begin by seeing that he is silent in the cradle, but by seeing that he does not learn to curse and to scold.

Let people say, if they will, that children learn cursing and vices before they know what they are.

We should bring up our children to learn God's word, to know God, to fear him and to believe in him; for a father should be the bishop and pastor of his own house; since the same office belongs to him over his own children and family, that a bishop has over his people.

Are we not fools? For we can make heaven and hell serviceable to our children, and still pay no attention to it.

For how does it help you if you are never so pious for yourself, but are neglectful of the bringing up of your children?

The true family worship is to educate your children well.

Otherwise, we go up to the temple, and sacrifice to God, blindly, like the Jews.

Those persons ruin their children, who knowingly neglect them, and let them grow up without instruction and discipline in the Lord.

LUTHER.

Most teachers sow plants instead of seeds; do not proceed from the most simple principles.

First, the senses should be exercised; then the memory, then the understanding, and lastly, the judgment; and all by commencing as science does, with an induction.

The pupil should learn nothing by rote which he has not already comprehended.

He should learn nothing which is not useful either for one or another condition in life.

All the studies must form one whole; must proceed from one root.

Pupils should learn, not only to understand, but also to express what they understand.

Speech, and knowledge of things, must proceed together.

Reading and writing should be learned together.

Actual intuition of things is the most important part of instruction.

From this proceeds actual knowledge; what is perceived by the senses clings fastest in the memory; for which reason pictures are to be recommended.



Every art is learned by practice. The teacher must do the work before the scholar does it.

COMENIUS.

The best mode is to make the children learn the most useful things.

Learning is only an ornament.

Therefore the child himself must learn to form opinions; to which end instruction should often be given orally.

Justice and desire for knowledge must be planted in the child; he must likewise be early instructed in morality; which represents virtue in a lovely form.

The actions of a young person constitute the truest touchstone of what he has learned.

MONTAIGNE.

Few rules should be given to children; but these should be strictly adhered to.

It is best that rules should be found out by the practice of them.

Children should be managed with kindness and suitably to their character.

We should watch against all affectation in children, and should keep them natural, and preserve the beauty of their character.

For your children especially, what they learn should not be made a burden.

Children should not be overburdened with plays; the best are those they contrive themselves.

Children's lessons should not be made a servile labor to them.

Even their sports would become disgusting to them if they were forced to them.

Children should be influenced to love to learn, and should only be made to work when they are inclined to.

Still, children should not be permitted to be idle; and must be accustomed to drop occupations which are pleasant to them, to take up others not so agreeable.

LOCKE.

Precocious boys and youths may fancy they are doing a good thing, when, at a time when those of their own age are enjoying themselves with really childish occupations, they are, as it were, acting a part in the society of adults, are treated by them as equals, participate in their equivocal and often immoral amusements, make a figure in the eyes of vain girls and frivolous women, actually enter into a lover's relations with them, and altogether conduct themselves as if they had long outgrown the children's school, and attained to the condition of young men, who are beginning, after their fashion, to enjoy the life of the great and polished world.

But they are not conscious how indescribably repulsive this unnatural amphibious standing makes them to all men of correct feeling and understanding; and how far they are inferior to those boys and youths who preserve their gay free and innocent state of mind with which nature has endowed them, and which affords them a pleasurable relaxation from their hours of labor; who preserve the character of pure youthfulness.

What would the ancient Greeks or Romans say, to see our youths and boys, at an age when they ought to be enjoying themselves with their companions, appearing in the guise of a modern dandy, flitting from one gay ball to another, regularly attending the theatre, playing the squire of dames or the tender shepherd at tea-parties, introducing and singing the newest opera airs, and busied with all the little and pitiful affairs which the highest taste of the cultivated and modish world finds so beautiful, delightful and magnificent?

The youth precociously trained has no youth; and when he becomes a man, no pleasure and no amusement.

We must declare that all those fathers and mothers are deluded, who,

as is unfortunately so often the case, are not as zealous about anything else as they are in using every possible means to make their sons, in their earliest youth, half-men-of-society.

KOHN.

As with plants, neglect or care in their tender youth contributes principally to their decay or flourishing; and as the immeasurable growth of the Roman Empire was justly ascribed to the courage and wisdom of those six kings who governed and protected its childhood, so, without doubt, the training and education of boyhood, and even at an earlier age, even if it is unobserved, and is noticed by no one, have an influence not equalled by the most persevering and assiduous industry in after years.

BACON.

To care for their children so that they may secure in this world a good bringing up, gold and wealth, and honor, is in this life almost the whole object of parents.

But for what is truly good; for virtue, goodness, honor of God; and by good instruction to bring ignorant youth early to this possession of a cultivated mind—these are very little thought of.

To inherit mere treasures and riches is not always good. Often a young man comes thereby to destruction. To be rich without good discipline will bring but little prosperity.

Better things are offered thee. Therefore is it that thou, high-minded father, dost seek for the health and peace of thy children in far other ways. Thy efforts are directed to secure what is really useful for them.

Your faithful commands and tireless industry shows them how to preserve themselves from unhappiness; and your always wise instruction retain them in the right path of duty.

Under the influence of such instruction, their souls and bodies will prosper. And such care on the part of parents will do still more good. The stream whose fountain rises with so much profit within your house, will flow out of it, doing good as it goes.

SCHNEUBEL. (*Poem.*)

There has been no period without persons entertaining the delusion that knowledge and education are to be considered the source of all evils. There was even a time when Rousseau, the corypheus of this class, was worshipped; Rousseau, who with deceptive and glittering eloquence, maintained that virtue had departed in proportion as the sun of enlightenment had risen above the horizon, and that with philosophers and artists, luxury and vices had come in; the sciences and arts, growing out of vices, astronomy from superstition, eloquence from ambition, hatred or flattery, geometry from avarice, physics from curiosity, morals from pride—these have enticed the human race out of their happy natural condition, and betrayed them into the depths of their present misery.

But aside from the fact that the realms of science and arts will as little be injured by this sort of declamation, as the rage of atheism has availed to overturn the everlasting pillars of religion in the human soul, it does not require long reflection to comprehend that Rousseau and his associates are viewing entirely and only from the misuse of the sciences and arts, not from the right use of them, and blaming the latter for what can only be charged against the former; in a word, that they are, as the proverb says, throwing away the child and the bathing-tub together.

And thus will it be to the end of time, even though whole armies of Rousseaus, like Vandals, should overrun Europe.

With unworthy teachers and pupils, science and education will bring harm and destruction, like a sword in the hands of an unskillful man; but under the charge of a truly wise man, they bring endless blessings.

But just as certainly as man was created, not to crawl on all fours in the depths of primeval forests, but to develop his mental and moral faculties,

as plants are organized to bloom and bear fruit, just so certainly he needs education, and only by means of it will become what he ought to become, man, in the highest sense of the word.

Where error is prevailing, I will shed the light of truth; where burdens are growing wearisome, I will inspire renewed strength; and by words and by poems, I will consecrate my brethren to a free humanity.

Though deceit and delusion fill the air with darkness, soon will the clouds of night scatter away into silvery stripes, like vapor. God did not give thee in vain the spirit of a nobler life. Go, and shine, whither he calls thee.

Voss. (*Poem.*)

What can be baser for the human race than like the Sultan Ibrahim, to be condemned to eternal childhood?

But this is the equivalent of completely extirpating all morality.

*Author of "Philosophie de la nature."*

Enlightenment is the progress of man out of his self-incurred minority.

Minority is the lack of the power of using one's own understanding without the guidance of another.

KANT.

The substance of enlightenment—that which is made the subject of it—what must be conceived under the form of it—is included in the three great questions: What must I do to become what as a purely intellectual being I ought to become, and what as a purely experimental being, I must become? What ought I to do? What can I hope for?

This is the center and focus of all proper and real enlightenment; to which are and must be related all material which may accidentally become the subject of enlightenment.

This true enlightenment is characterized by the fact that all other knowledge and thought is, as means, positively or negatively subordinated to it, as to a compend of all truth which is worthy of being known, which is interwoven with the essential being and the real purpose of humanity, and which is immediately interesting.

These three great questions, which comprehend the one great sacred principle of humanity, and the clear answer to which will bring out clearly the consciousness of the idea of the one principle, so that the will which can comprehend only what is thus grasped by the consciousness, can comprehend it and govern itself by it,—these three questions have no other purpose than harmony of thought, for the sake of rendering possible a will in harmony with itself and with the whole world of reasoning minds.

He who has once listened to this music of the spheres—which however is only heard by the ear of the moral nature—has raised himself to the level of humanity; and belongs among the elect, who do not vainly wear the human shape.

GREILING.

The true victories, the only ones which we need never lament, are those won over the dominion of ignorance.

The employment most honorable, and most profitable to the people, is to labor for the diffusion and extension of the ideas of men.

NAPOLÉON BONAPARTE.

Training, cultivation and enlightenment are modifications of social life; results of the industry and efforts of men towards improving their social condition.

MENDELSSOHN.

Man becomes greater in proportion as he learns to know himself and his powers.

If man possesses the consciousness of what he is, he will soon also learn what he ought to be; let him have a theoretical respect for himself, and a practical will soon follow.

It is vain to expect great progress from the good tendencies of man; for in order to become better he must already be good. For this same reason, the revolution in man must proceed from the theoretical consciousness of his being; he must be theoretically good, in order to be practically so; and the surest preparation for a course of action consistent with itself is the theoretical conviction that the essential part of man exists only in unity and through unity.

For man, having once reached this conviction, will also see that unity in will and action must be as natural and necessary to him as the maintenance of his existence.

And from this, he will further observe, that unity in will and action are as natural to him as the mechanism of his body, and the unity of his consciousness.

SCHELLING.

True enlightenment is characterized, not so much by extended knowledge and insight, as by correct estimation and valuation of all that men know and undertake; by the correct reference of all things to their purposes, and ultimately to the highest destiny of humanity; and lastly, and especially, by man's endeavor to free himself, in opinion and action, from the influence and absolute authority of all other men, and of his own previous opinions.

Enlightenment itself, or the efforts which the enlightened person makes, not only to diffuse his own views and to relieve other men from the errors which he feels himself free from, but also to awake in others an independent and free activity of thought and action, and to render them capable of and inclined to the investigation of truth and the renunciation of prejudice:—this pursuit can be successfully followed only by one who is acquainted with the powers of the human mind, the natural course of its development, its inward and outward obstacles, and with the original and subsequent accidental connexions between the impulses of the heart and the tendencies of the tastes, on one hand, and the procedure of the thinking part of our nature on the other.

Aside from these views and convictions, nothing can result from enlightenment, except what has too often been in operation: a rebellious attack upon the same freedom of opinion which man ought to possess for himself and to allow or restore, without limitation, to others;—a well-meant despotism over the intellects and opinions of others;—an unnatural pouring in of new knowledge with the existing mass which has no related and connecting materials in it; an operation of which the best result must be the rejection by the latter of the new addition, whose conjunction, if enforced, would break up all connection, and all that beneficial union which gives to our knowledge its principle value and interest.

C. C. E. SCHMID.

The chief problem of education must be, not only to communicate to youth in an intelligible manner the sum of what man as man needs to know, but also to develop harmoniously and naturally the various faculties of the soul, so that the pupil himself shall learn how to investigate further after truth, and shall choose for his guides in life, the noble and most elevated ideas of the true, the beautiful and the holy; and lastly, that by gradual accustoming, in earnestness mingled with love, he may be led in the road of right, morality, religion and virtue.

True enlightenment consists in this; that man rightly comprehend his moral destiny, always have it before his eyes, refer to it all the manifold phenomena within and without him, and observe everything from its proper point of view.

HEYDENREICH.

It is not merely true that all enlightenment of the understanding is valuable only so far as it reacts upon the character. It also proceeds, to

a certain extent, from the character; for the road to the head must pass through the heart.

Development of the susceptibilities is thus a pressing need of the age; not only because it is a means of rendering increased insight efficiently useful in actual life, but also because it stimulates to the improvement of insight.

SCHILLER.

We do not divert men from error merely by contradicting their foolish words, but by dissolving out of them the spirit of their errors.

It does not help one to see, to describe to him the night, and its dark colors and shadows. We can show what the night is only by lighting up; and what blindness is, by covering the eyes.

Just as little will one learn the right path to a place by being led about through all the side streets where he might go astray.

PESTALOZZI.

Enlightenment in an empty heart is mere memorizing, however it may add to the acuteness of the mind.

J. P. F. RICHTER.

Why can not law and a fixed order of each thing with all, complete what clear reason has begun?

One who doubts upon this point, must receive it as the first law of nature that the human race, sold under the dominion of evil, can not attain to any better condition; and that its clearest and surest principles must for ever remain false and delusive words.

But if this is not so; if infinite space has resolved itself into stars and suns; and chaos, under the laws of nature, has been reduced into a regular course, then let us, in this chaos of men on our earth, not doubt of the same desirable consummation, but rather, with good courage, contribute our utmost to bring it about.

Light is the quietest and strongest element in nature. By its rapid beams, by its direct, continued, noiseless action, it enlivens and purifies nature, wakes and paints the slumbering blossoms, or causes other colors to fade. It is the eternal agent of incessant creative power.

So should our efforts be for posterity; and all their reward, that by them, as by the absorbed rays of light, a new and beautiful creation shall arise.

HERDER.

It is perhaps not hard to understand why so many persons prefer darkness to light; night to the brightness of day.

The fault may lie in the organization of their sensorium, which can not bear light.

Let the owl be asked whether day or night affords it the most pleasant sensations?

But there may be a fault on the part of the enlighteners themselves. They may disseminate harmful sparks of fire instead of the light of truth—may introduce more of corruption among men, than of moral improvement.

The visionary, the alchemist, the mystery-monger, as much think themselves enlightened, as other men think them fools, or what they are.

Enlightenment is recognition of truth, rejection of prejudice, delusion and superstition.

In order to diffuse enlightenment more generally, the intellectual faculties should first be as much as possible brought under good reputation; and instruction, encouragement to progress, and to the investigation of the truth, must be made universal.

Otherwise, there would never be more than a few enlightened persons; and there would be very many who would injure and persecute them.

WEIKAND.

As the sun is the central point of our planetary system, so that our earth,

as well as the other planets and their moons, circling round it, derive from it light and heat, so does reason, as the means of knowing the eternal and divine, and according to the same laws of nature, constitute the central point of all the other faculties of the mind and soul.

But if education, instead of improving, is not to be injurious, and is not to lead the pupils in paths of error—if instead of blessing it is not to bring only cursing and destruction, by skillfully perverting men from their proper course, it is necessary that the development of the reason should not only not be neglected, as is the custom especially in a period of partial enlightenment, but it ought to be managed with a special view of enabling each one of the faculties to be cultivated in the way that nature prescribes.

For this reason, religious and moral education, in which the reason perfects itself, unfolds its flowers, and bears its fruit, must be a permanent and principal department of it.

The conscience, whose power man feels even in the midst of the tumult of base passions, and knows that what he does is wrong, should receive early and solicitous care; in order that the soul may not deny its own pure nature, or its laws.

That susceptibility, which we denominate the conscience, is *nothing* but the complaining voice of the soul. It is the immortal part of man, speaking.

He only is truly free, who obeys this voice, the law of his soul, which can only desire what God wills.

ZSCHOKKE.

In truth, what more elevates the soul, or more encourages virtue, enlarges and refines the impulses of the heart, as lofty opinions of the object of our existence? The universe, unlimited; infinite space and time; the sun which shines upon us, a spark from some superior sun; our immortal soul, allied to immortals, and—if it obeys God, destined to God's happiness.

WIELAND.

If childhood is educated according to the measure of its powers, they will continually grow and increase; while if forced beyond their strength, they decrease, instead of increasing.

AUGUSTINE.

During the first seven years, the child is pure and simple, like soft wax.

With the departure of boyhood comes the period when the child takes up all manner of faults; partly from his own tendencies, partly from his imitation of the evil which he sees. As the body grows, the mind increases along with it, and the secret feelings burst into flame.

Deficiencies in true education are the source of delusion and of *all* transgressions; the chief cause of violations of the laws of the mind.

In order that the invisible mind may be the dwelling of the invisible God, the characteristic endowments of men are in the need of instruction.

PHILO.

The design of education, is, in one hand, the development of what, though undeveloped, is capable of development, from dependence to independence; and on the other hand, likeness to God; that is, harmony; health of the bodily and spiritual organism, so that it shall enjoy the utmost sense of life and activity of which its organization renders it capable; that all the functions of the corporeal life shall be harmoniously active; that the mind shall also be harmonious; to the end that in thought truth, in will freedom, in feeling love, shall be the star and center of life.

But the character also has its needs.

He who undertakes to educate it, must himself love freedom; for he is to educate free men.

Freedom from passions and desires, from prejudice and superstition, that freedom which finds its life and essence in law and in self-denial,



that freedom which knows that man has within himself the source of his pain and pleasure, and that he only is free who frees himself—is the first requisite of a teacher.

KARL SCHMIDT.

Man takes his place upon the scene of life, provided with bodily and mental endowments such as no other being has, that we know.

All that he can become appears as a seed which awaits its development; a flower from which the fruit will be developed, and under favorable circumstances will ripen.

As in other organized beings, this development and training partly, follow unvarying natural laws without needing any help from without.

The body grows, its members enlarge and become useful. Manifold impulses appear. The senses receive impressions from the outer world. The reason becomes active, and even in its most imperfect manifestation gives a character which distinguishes man from the animal creation, not merely in degree, but in kind.

But, unlike animals, man has more need of foreign aid, from the moment of birth to the period of childhood and youth.

This aid must supply the place of the instinct of animals, and of the services which he afterwards receives from the free activity of his matured reason.

Without constant care and protection, the body, which man has in common with beasts, is in constant danger of injury or death.

Without the aid of other reasoning beings, that quality which distinguishes him from the unreasoning, can never approach that grade of completeness which its original perfectibility will admit; and the highest of its endowments, the reason, which is founded upon independent action, would, though it might attain to some strength, with difficulty attain to that fixed grade of elevation in which only it can appear as entirely perfected.

Without instruction from others the mind can acquire by its own observations upon the external world, some inconsiderable store of knowledge; but it would both gain this slowly, and would fail to gain a great additional mass.

Therefore, man needs education and instruction.

NIEMEYER.

Training is, developing according to an idea.

Nature trains, because she develops. Art trains the material which it derives from nature.

The training of a faculty takes place, so far as man can perfect that faculty; but this is possible only in proportion as it is strengthened.

To cause a faculty to need an increasing amount of stimulus to activity, is to weaken or to blunt it. The common induration of the faculties is nothing else.

The faculties are strengthened, as they are made more capable of stimulation; they are weakened, in like manner, when their activity is not sufficiently excited. This is pampering or weakening them.

The perfection of a faculty as to its original nature, in the progress of its existence, consists in its elevation; as to its development, in its strength.

Since the mind of man is destined to endless development, it must in like manner develop its individuality also.

Human development appears as a progress from an undistinguished condition; as the gradual assumption of more and more distinctness of character and form, and movement from chaos into self-consciousness.

The more virtue there is in man, from childhood upwards, the more does he long after development and cultivation.

The training of every man therefore presupposes faculties and virtue; and endeavors to develop them as far as possible.

Not to train a child is, to permit the noblest plant in the garden of God to languish.

The training of men must elevate their minds.

Training makes men free, and universalizes them; for it requires a complete development.

Lack of training is ignorance; the activity of the faculties without training, is savageness.

If the training leads to variations from the original pattern, that is, from nature, it becomes mis-education.

If the course of training outruns the development, so that the powers are overtaken, this is over-education.

The same term is applicable when the training transcends the appropriate sphere of the man.

Education which is imperfect, and without any plan, is nearly related to the same.

SCHWARZ.

The purpose of true education can only be, the development of the bodily and intellectual man, so that each of his faculties may reach its highest development, in the utmost possible harmony with all of them, and that the reason may guide them all.

What man needs, as a man and a citizen, every one, in every situation, can attain for himself. In the pursuit of this object which does not admit of distinct statement—reason's ideal of a perfect man will serve a measure of attainment.

Maintaining the health of the body; training its powers; developing and sharpening the natural understanding; enlightening ideas relative to man and the world; instructing and elevating the imagination, the sense of the beautiful, the noble, the great, the affecting, the refined, the pleasing; harmony of the bodily desires, and subjection of them to the moral laws of the reason; moderation in the enjoyment of the good things of life, and equanimity in the want of them; reference of all earthly being and action to the other side the grave; a scene, it is true, unknown, but the idea of which must express a harmony with the purposes of the moral law, and of a living, reasoning being; these are the objects which every man should seek to secure for himself, and can so secure, if he resolves to do so, and if no insuperable physical and moral obstacles intervene.

While man is thus learning and practicing the special trade, art or science, which is to fit him for his duties as a citizen, still he ought not to forget the ideal which should always be before him, but should be mindful of the symmetrical development of his whole nature, with a view of his higher destiny.

From the neglect of men to train themselves in this manner to true humanity, and to carry it to a continually greater perfection, arise far the greater part of those evils which oppress our polished civil life. This is the source of intellectual over-exertion, which ruins the body, with all its sad consequences, of lawless wanderings of imagination, of enervation and weakness from excess of animal enjoyments, of wild egoism, which destroys all happiness, of anarchic tendencies, and even of devilish wickedness though accompanied by high intellectual cultivation.

To so ill balanced a training as this the condition of beasts, which Rousseau prefers to it, is indisputably preferable to it.

THE AUTHOR OF *The Impulses of Reason*.

But few persons have the talent and good fortune to be able to become, like Pascal's father, the teacher of their children.

But the child should not too easily be dismissed from his home; for there is best developed his own proper family individuality, which he can not lose without injury to his moral character; and his removal from the

midst of his family circle at an early age often estranges him from father, mother, brothers and sisters, for life.

But although public instruction is usually to be preferred to private as being better by its nature, still, as each has its peculiar disadvantages, the change from the latter to the former must be prepared for; and every educated father should retain the right of protecting his child against pedagogical injustice, and of watching over and directing his progress.

VON AMMON.

One of the most destructive errors in education is the idle vanity, that looks for everything before its time, and will have fruit before flowers; in order to enjoy the astonishment of the guests at seeing the table adorned with the evidences of summer, when the earth without is covered with snow and ice.

Such things always are pleasing to the eye, even when their growth is not natural. A precocious child, however, seldom grows up into a valuable man.

It is true that nature, who leaves nothing unattempted, sometimes forms men in whom, as in the gardens of Alcinous, buds, blossoms and leaves grow together on the same branches, outstripping the year and the seasons; but to endeavor to imitate by art what happens as by a miracle, sometimes, and seldom enough, is not only folly, but a sin against the laws of nature.

The appearance of universal attainments can in our times be had very cheaply.

Wisdom stands in the market place, with all her wares; and even from what she drops out of her lap, can a right beautiful child's garden be adorned.

This is as pleasant as it is easy; and it may perhaps be forgiven to the vanity of a mother, that she takes so much pride in her little angel adorned with learned spangles, without reflecting that the jeweled ornaments which the morning flings on the grass in the meadow glitter still more brightly, and yet disappear so soon.

The father, who ought better to know this, can not so easily be forgiven.

Fathers may also be met on every street who, because the laurel wreaths do not early fall on the brows of their sons, torture them with a thorny crown of bitter reproaches.

This is not love; it is the vanity of the carver who ascribes the bending of the knee before the image which he has well or ill carved and painted, to himself and his art.

But this is a serious matter. Knowledge is no doubt good, always useful, and in a thousand ways necessary. It is not however the first thing in education, but the second and third.

The first thing is the capacity of the pupil, in all its relations; and all knowing and learning, whatever its design, must in education be first referred to this capacity.

Any one who has been educated much in appearance, and lacks capacity, however good his other qualities, can not be on good terms with himself.

The most modest persons are found among those who possess thorough knowledge; the vanity among those who, being unacquainted with the extent of their department of learning, believe themselves as it were, sovereigns of all of it, because, like the ancient navigators, they have set up their arms upon the shore.

FR. JACOBS.

The being of man depends upon the intelligent essence which proceeds from the primal life, or God; and, like God himself, has for its destiny

only its self-determined object, viz., the task of portraying that primal life; of reproducing the image of God, by thought and action.

Therefore must man be educated towards a divine rather than an animal character; and the future man should be so guided and supported by the man already mature as that he may be enabled himself to attain the same maturity, and may himself conduct his own life towards its destiny.

Accordingly, the child's inborn tendency to activity must be stimulated, trained and made a pleasure; he must be taught independent action, his mind must be trained, and the feelings of justice and benevolence implanted in him.

This process must be assisted not by habit merely, but by instruction also; which is, the diligent endeavor so to guide one who is yet uneducated, that he shall be able to acquire independently for himself such knowledge as he lacks; so that he may perfect himself in the right course, not by means of instinct, but consciously.

GRASER.

Pedagogy is the art of rendering men moral, in such a way that, taking them to be natural men, they shall be able to point out for themselves the way to be regenerated, and thus to change their first nature into a second, an intellectual one, in such a manner that this second shall become habitual.

This is the most important task of education, to eradicate the characteristic ideas, thoughts and reflections of youth, so far as they are capable of such; since the thoughts, like the will, ought to begin with obedience.

HEGEL.

Man is wonderful, placed on the dividing line between two worlds.

Belonging, through his senses, to the world of phenomena, he wanders with the beasts, weaker than most of them, helpless and without any guiding instinct; while that within him which thinks, which governs him, is able, when a time comes for despising every earthly good, and even for holding life itself worthless, to lift him beyond the sphere of the world of the senses, and to secure him a place in the divine world, as his proper home.

These two natures,—one full of unbounded pretensions, which it is every moment vigorously putting forward, and the other endowed with unbending dignity,—seem paired in an incompatible manner; and from the moment of their connection, the sentence of a strife as unrighteous as irreconcilable, seems pronounced against them.

Yes, nature, which called a world out of chaos, and has composed into unity the most heterogeneous elements, has contemplated a similar union in man, and has, in him, not forcibly chained together, but married, the most opposite traits.

When, by means of freedom, these elements approach each other, when the impulses of the mortal nature are cleansed and purified in the beams of the divine part, when the divine nature, without derogation from its dignity, clothes itself with the mortal part, and thus appears as love, no longer commanding by terror, but pleasing by mildness and earnestness, then there appears a complete and enrapturing harmony, of which every other union of the material and spiritual seems only a repetition or reflection.

At the highest point of this union, humanity results.

The free union of the divine and the earthly, the free coincidence of the desires and impulses with the law-regulated requirements of the reason, the appearance of the divine dignity in the guise of the noble and elevated—this is the loftiest triumph of man; and the purpose of these efforts is to bring about precisely that ameliorated condition of humanity, in which the strife of the discordant elements is appeased.

To train up youth in the best manner, is to train them to manhood—to humanity.

FR. JACOBS.

If education had always proposed to itself the noblest task, it would find none nobler than to assist in so developing all the powers of man, that they shall be most useful in the service of virtue, or most capable of moral uses.

NIEMEYER.

I term an education ignoble, in proportion as it interferes with the dignity of man.

Instead of training men for themselves, they are too often educated only for others, for the state, or even for some particular design, profitable to their family.

Instead of guiding them to wisdom, they are taught in the school of shrewdness.

Instead of training them in a moral prudence adapted to practical life, more concern is often shown to secure them skill in pursuits often superfluous, and which can be of service only for accidental purposes and in certain relations.

C. O. E. SCHMIDT.

Man is not clay, which the educator or the moralist can model at his pleasure, but a plant, having its individual nature and form, and capable only of being cared for by him as by a gardener, raised up to its full growth, and brought to its greatest possible perfection.

The educator will never try to make a wild apple-tree bear a peach, but will try to make it bear sweet apples.

GAERVE.

If the future man, whose mind, at his birth, appears entirely absorbed in his body, should remain entirely and exclusively under the influences about him, he could and would only become a natural being, without becoming a reasoning one.

His destiny, however, is within the realm of spirits; whose citizen he is to become.

Man can only develop into an intellectual being, when the predominating power of nature is broken down, and forced to employ itself in the service of the mind.

This can happen only by means of the operation of the mind itself.

Only by the influence of intellectual powers, can the seeds which lie within human nature be stimulated to their higher development and unfolding.

The mind is the real I in man, and the mental nature his essential nature. The body is only a temporary organ, vivified and upheld by the mind, and without it, falling into dust.

As the child can only become a man by being among men, so it is only by means of men, that is, by means of the intentional co-operation of other men, that it can become a man in the right way and at the right time.

Otherwise, his training would be left to chance; and a long time would pass before the child would attain to the grade of independence; in many cases, also, the mental influence from social life would not be strong enough to counterbalance the overpowering influence of nature in the child.

It is only by the intentional co-operation of educated men that the power of the mind can be so strengthened as at the right time and to the proper extent to overpower the forces of nature, and to subject them to itself.

This intentional co-operation is called education.

It is education which affords the means of progress from a condition of merely sensuous activity to one of higher intellectual life; since upon

it the immature man depends for both capacity and tendency to attain to his destiny.

But since, as was observed, it is the power of the mind over the animal nature which alone causes education to be efficient, it is evident that the more perfect the mind, and the more it resembles the divine mind, so much the more perfect and efficient will education be.

The mind which generally prevails in the world of men often claims to be the universal mind; and the reason of some individual is not seldom assumed to be entitled to authority.

This interferes with the universal mind; and thus arise numerous errors, which continually produce new errors, and throw men into sins and destruction.

GRAFE.

Why is man cursed in so many ways? Why must so many special means be used for cultivating the intuition, the reflective powers, the memory, the feelings, and the heart, partly by special teachers, and partly by means of different subjects of instruction?

Can not instruction in mathematics at the same time cultivate the sense of beauty and of order, of law, and of cause and effect?

Socrates was not the nurse, as he called himself, but the mother, of his disciples.

The longer the child is fed on milk, the better and stronger he is.

As the body must be strengthened before bodily labor is commenced, so the mind must have grown before it may undertake the acquirement of art and of science.

EDWIN BAUER.

All education must be in accordance with nature.

But as the most prominent law of nature, and especially in human development, is that of unity in variety, so education must have reference to this law, and must endeavor to observe such unity in variety; so that the sphere may be its emblem.

For this is the presentation of variety in unity and the opposite.

Unity and variety, as perfectly united as possible, are what education should strive after.

True human training requires that man should be developed from within himself, in unity of mind and feeling; and thus should be educated to an independent and comprehensive display of this unity of mind and feelings, in order to complete self-knowledge.

Man should recognize the principle of unity in variety, and the converse.

He should recognize humanity in each man, and the man in humanity.

He should discover the external in the internal, and the internal in the external; the mind through the body, and the body through the mind.

The essence of education consists in this: that each department of human activity is developed in the individual; none of them isolatedly, but each in a harmonious relation to the others.

Therefore the school, and life, should each be treated as a unity; so that in education, the attention may be fixed on the future man, the father of a family, the citizen, the patriot.

FROEBEL.

I have always thought that a man improves the human race, by improving the young.

LEIBNITZ.

Heaven be thanked that it is a point of honor to care for schools!

For men without schools are men without humanity; like birds who can not fly, or fish who can not swim.

If each faculty needs training, although it must develop and ripen itself, in what other place must the intellectual powers be exercised?



But as much as a dollar is worth more than a penny, so much are the intellectual powers more valuable than the bodily.

The child must observe, and think, and learn to retain his thoughts in his memory; and this the school teaches.

He must continually be mindful of God and of his duty: and must cultivate his sense of the beautiful and lofty; and this the school causes.

He must accumulate and arrange human knowledge, express his thoughts by words, and make himself understood by others; which the school makes practicable.

It is the planting time for the whole life.

He who cares for the school, cares for the most important planting-time, not only for earth, but also for heaven.

TISCHER.

There are three kinds of bad schools: the antique-dogmatic, which merely teach to read the catechism, arithmetic, and writing; the merely instructive, which overload with undigested knowledge; and those which cultivate only the power of thought, and which thus cause ignorant disputatiousness.

GRASER.

The purpose of instruction and education is not a mere pretended enlightenment, but the illumination of the understanding; and not this alone, but also the utmost possible development, at the same time, of all the powers of the soul.

*Mere* enlightenment—which was, and not very long ago, the only object of education—is a training of the understanding at the expense of all the mind; and results in nothing except a chilly *aurora borealis*, without any real life.

The training of the whole intellectual man establishes over him and in him a sun which dispenses light, warmth and fruitfulness to all.

In the most prosperous period of Greece, almost every Greek was familiar with Homer.

We have Schiller, Goethe, Claudius, Uhland, Ruckert, and many other singers of the noblest grade.

Let us strive to make our people at least partly similar to the Greeks in their acquaintance with their poets.

The common school may be made to do much for this purpose. Time can not be wanting, when we can spend it in stuffing the heads of the children with the names of Asiatic mountains and Brazilian apes.

HARNISCH.

Nature furnishes milk as the first nutriment for man. It is also the best; as it contains everything necessary for nourishment and growth.

Notwithstanding its simplicity, it affords the child sugar (4), fat (8), casein (5), phosphate of lime (0.5), water (87); thus giving free nitrogen, or material for warmth (sugar and fat), nitrogen compounded, or material for making blood (casein), bone-making material (phosphate), and material for adding or dissolving (water.)

In like manner should man receive intellectual milk in his instruction; material at once simple and manifold, nutritious and well-flavored; strengthening to the mind, but in pleasant vessels; warming and refreshing; water, but not insipid; fresh milk, not stale nor sour.

That teacher is the best who can make milk of his knowledge. He will furnish to boys and youth everything their mental development requires.

EDWIN BAUER.

At the end of the fourteenth or fifteenth year, school instruction—public education—ought not to cease, but to continue, even if the number of hours is smaller.

A youth of fourteen is yet a child in insight and power, as in years.

Now is approaching the period most important for influencing him, and most dangerous. And is it then that we are to leave the youth to himself, to be corrupted by chance, or by the common affairs of life?

This would be—to speak mildly—foolish. It would be to begin, but not to finish.

Therefore, instruction, and the further exercising of the powers of the mind, should continue, the number of hours being diminished.

Now should be studied the most important subjects; theories of religion and morals, ethical principles and development of character, theory of the duties and rights of citizens, their relations to the authorities and to the state, general knowledge of the laws of the land, especially of the penal code.

This will accomplish much more than the studies hitherto pursued in schools or infant schools, the miserable practising of mechanical reading, writing, &c.

No one should be graduated from the institutions of public education and training, until he arrives at age.

DIESTERWEG.

What must be done in order to keep pace with the requirements of the progress of the age, which is all the time demanding additional studies for the young?

Shall all new studies be rejected, and only the few retained which the "good old times" admitted? Shall different studies be pursued together?

The former half-way method has seeds of death within it.

The spirit of a principle is never comprehended except by those who teach especially some one department; but who in practice connect the various departments in a truly economical manner.

And yet this condensation of knowledge is never a complete solution of the whole problem.

I know of but one key to it—the prolongation of the period of study.

If we are requiring of boys of sixteen what they might learn at fourteen, it is then only worth while to introduce more studies into the common-school course, and to endeavor to make an effective enlargement of it.

But the school should cautiously beware of making sacrifices to the arrogant requirements of the spirit of the age; which, whenever it takes a wrong direction, promotes nonsense, and desires to study by steam.

STOR.

The human mind is like a vessel which may be filled; and at the same time like a substance capable of combustion.

The teacher should act on both principles; should fill up, and set on fire; and will exemplify his mastery of his art chiefly by his division of his labor between these two departments, and by his adjustment of the proportion in which he endeavors to lead his pupils toward independent knowledge, from without, by learning, and from within, by thinking.

DOEDERLEIN.

It is not overloading with dead knowledge, but the purifying and strengthening of the moral feelings, which is the highest aim of education.

LUCIAN.

Education, with relation to men—for both animals and plants can be educated, and the word is derived from the latter—is the gradual change of the immature into the mature man.

This change happens, firstly, by means of the action of nature in the young man himself, impelling him, in body and mind, to the development of his powers; and in the second place through other men, with whom the young man stands in relations; by their constant influence upon him,

stimulating him to activity, and thus to the development of all his faculties.

Education by means of men is in part unintentional and purposeless, in part designed, and conducted according to certain rules, conceived with a consciousness more or less clear.

It is this latter to which particularly the name of education is applied; and it is this education which a man needs in order to be truly well-trained.

If all education were left to the operation of nature and of accident, men might, it is true, do well physically, but mentally would remain exceedingly undeveloped.

Education however must be natural; that is, must be adapted to the nature of man as a corporeal, reasoning and free being; and therefore must not be mechanical, merely directory or drilling, as with beasts, but reasonable and admitting of free activity, and neither pampering nor over refining.

Instruction is an important part of this education; inasmuch as it must itself communicate education; that is, must be stimulating, developing, and training, and must not merely hand over to the memory for safe keeping a multitude of words and facts.

Education begins with birth; and is therefore at the beginning, of course, merely physical or corporal; it soon however becomes moral and intellectual also—or, to speak generally, mental; for the mind of the child very soon becomes active; as soon as he answers to the smiles of his mother, and begins to stammer out words.

The mother is therefore the first and most natural teacher.

The father, however, and others who are round the child, partly involuntarily and partly voluntarily, take a part in it.

For this reason the first education must be domestic.

Public education takes place later; and partly continues the former, and partly supplies its deficiencies; especially for boys, who by virtue of their natural destiny enter so much more into public life than girls.

When the youth attains his majority, he becomes his own educator; although the external world continues to have an incessant influence upon him.

This stage of education continues until man, having become a more or less ripe fruit upon the stem of humanity, falls from it and sinks into his grave.

KANT.

Man consists of two opposite natures, neither of which should be sacrificed to the other, but which should live in harmony with each other.

The corporeal nature is not merely the unessential and refuse shell of the extra-corporeal; it is not merely the prison of the mind, worth no care or protection; but it is the material root of the spirit; the independent ground and basis from which the mental forces spring up and which secures them their efficiency.

In like manner, the intellectual nature is not the mere blossom and fruit of the body; it is a separate independent power, recognizing laws by the reason, and governing itself by the free force of the will; in a manner quite opposed to the nature of the corporeal life, which acts and produces without knowing or willing, under the laws of blind necessity.

As man is equally an animal and mental being, and can only attain to both the natural and intellectual purposes of his life, by living in a completely harmonious condition, therefore his whole education must bring about an equal development and improvement of the powers both of the body and the mind. Physical education and mental training must go

hand in hand, in order that neither may be carried to an extreme of irreparable injury to men in this life.

ROTTECK and WELCKER, *State Lexicon*.

It is worth more to be possessed of but few of the lessons of wisdom, but to apply these diligently, than to know many, but not to have them at hand.

The object of education is not external show and splendor, but inward development.

What is the use of a great number of books, when their possessor knows only their names?

An enormous mass of materials is not instructive to the learner, but discouraging.

It is better to study thoroughly a few good authors, than to wander about among many.

It is in the possession of the greatest idlers that we find the largest libraries—as ornaments to their walls.

From everything noble the mind receives seeds, which are vivified by admonition and instruction, as a light breath kindles up the spark in the ashes.

Youth will correct itself, under management and stimulus.

The powers of the mind are nourished by instruction, and increase, under its influence, in proportion as new ideas are added to those innate, and bad ideas are made better.

Short lessons, in sentences or verses, are of especial importance in education. They are instructive, in proportion as they awaken the attention, and stimulate the will.

Youth, moreover, ought not to pluck first in one place and then in another, nor to grasp too eagerly after everything at once.

We attain to the whole, through the parts.

The burden must be proportioned to the strength; and no greater ones laid on than the pupil can bear.

No greater tasks should be imposed on the pupils, than they can comprehend and master.

SENECA.

But how is it, that the most careful education often miscarries; that sometimes, even from the best families, there come individuals, if not worthless, at least of weak character; while very eminent men develop without any education at all, and accomplish everything for themselves?

The reasons for this state of things are:

1. The most careful instruction is not always the wisest; and the best intentioned parents often do the greatest harm by the means from which they expected the greatest good. For example; many sorts of religious instruction make the recipients irreligious; virtue always watched over does not maintain itself when not watched; strictness and kindness, both of which are indispensable in education, accomplish their purpose only when mingled in right proportions.

2. It is very commonly the case in families where education is carefully attended to, that there is a too great uniformity in the mode of managing the children, though the children may be of very various characters; and thus it follows that what helps one, harms another.

3. The education which the individual receives from his parents and instructors, as he grows up, is not the only influence at work upon him; and the influence of other persons, and of circumstances, is often only too great; and moreover it acts upon him from all sides; while education can operate only on one side.

4. The fact that eminent men have seemed to do everything for themselves, only shows that education given by other men is not the only influ-

ence which develops; and that some few—and the cases are very rare—have sufficient innate powers to penetrate through all obstacles; and that even in these cases we must not overlook the external circumstances in which they were placed, and which were perhaps precisely those best suited to them, and therefore best fitted to fill the place of the education—in the ordinary sense of the word—which they lacked.

5. While a few remarkable instances may be cited of men who have succeeded without education, we must, in order to correctness, take into account also the great number of those who have been entirely ruined by the want of a wise education.

6. It must also be remembered, that under the influence of a proper education, such men would not only have been still more accomplished, but that they would have escaped many dangers which have been very harmful to them, though perhaps also useful.

NIEMEYER.

There is, in the present organization of the world, but one single species of instruction which is applicable to all classes, and embraces all human relations—namely, religion.

This, being restricted to no particular period of life, not visibly interfering with the course of civil occupations, and governing and training the heart more than the head, and therefore requiring no artificial preparation from its pupils, finds its operations no where limited.

It awakens and maintains the consciousness of an inner and higher existence, which no chains can reach and no oppression can subdue; and thus is the most efficient teacher of true freedom, and of the recognition of that only equality which sustains all the civic relations, and exists in the sentiments even of the poorest.

VON GENTZ.

You have everything, if you have citizens.

For the fatherland can not exist without virtue; and virtue can not exist without citizens.

But to train citizens is not the work of a day.

Men must become accustomed, even in childhood, to consider themselves only as individuals related to the State; and thus they will at last come to feel themselves parts of a whole; members of one fatherland.

It will afterwards be too late to change them, when once they have come under the dominion of the passions of that degraded and hateful mode of life which rejects virtue.

How shall love for the fatherland be developed, under the many passions which choke it up?

And when ambition, vanity and pleasure have once established themselves in a heart, how much of that heart will remain to be devoted to fellow-citizens?

*French Encyclopædia.*

Education and instruction are, according to the use of language, two different things; the former including the whole of physical, moral and intellectual development, but the latter applicable more properly to the training of the intellect.

Instruction must include everything which relates to the development and training of the man and the citizen.

Up to this time, in most countries, more has been done for knowledge and practical ability, than for faith and love; and of the two chief human feelings, far more regard has been paid to selfishness than to the moral sense.

Therefore it is that in politics equality is not maintained; because, with men of mere intellect, material forces govern, and the spiritual forces of justice and truth are subordinated; shrewdness and not right feeling being the ruling trait.

A man whose feelings are properly trained is always a good citizen, and under a free constitution will always both enjoy happiness and promote it in others.

We have enough of laws for men; now let us train some men for the laws.

ARETINUS.

Our children are by natural endowment reasonable and moral beings; and under our guidance and supervision must become men capable of self-government, and of making it their constant duty to act according to the action of their understandings and the principles of their reason.

To bring them up to this capacity is the aim of moral instruction.

When we have brought them to it, they will endeavor to keep themselves unspotted from the world, to lay out their own path in it, and not to fail of finding their happiness in it, in the way of uprightness.

BEDAY.

When any one undertakes to educate a child according to the rules of a true system of pedagogy, he must of course see that all mere imitation, and mere pouring in of knowledge and rules for life, are opposed to nature and to the object of education.

The ideal rule laid down by Rousseau, "Follow the indications of nature," must mean, if rightly interpreted, "Manage your child as a being whose independent existence will not receive an arbitrary direction, limitation or expansion from you, but who will lay out his own direction, and enlarge his own sphere of life, and who is to receive from you, or from the whole of nature without him, only assistance, preparation, and removal of obstructions.

O Pedagogy, how long wilt thou continue to darken wisdom with thy rules, leading-strings and machineries?

Why is it that in the sphere of humanity, so much is labored at, and so little is done?

Why do so many suns set without having given light?

Why do such masses of power disappear without leaving a trace of their operations?

And why do such numbers of men stand still like rows of stunted trees?

The reason is that the faculties are crippled when they first awaken; because man makes it his first business to fetter the impulse of development.

The chief principle of education should be, man must train himself; must develop himself. But other men, without him, can and should promote this self-training, by external influences.

As the physical man develops itself, but not without the preceding act of generation, so does the intellectual man also develop himself; but not without the influence of other intellectual beings without him.

And as the physical man is nourished by food furnished him by means of others external to himself, so is the intellectual man, by intellectual nutriment furnished to him.

PH. CHR. REINHARD.

That was a true and noble expression which was made use of by Scherer, Royal Bavarian Court Librarian, in his "Retrospect of the Twenty-five years' Reign of my King," when he said "What is the use of the wealth of materials for thought and discussion, if the principal faculty—of action—is crippled? Or of talent and intellectual cultivation, when the heart is not attracted to what is great and noble? Or of the extermination of error, if faith is exterminated with it? It is not the Spirit of the Age, but the Pest of the Age—this half-knowledge and sciolism in all departments and of everything susceptible of thought—this concern and inter-



est with whatever is far off, and indifference to what is more useful—this escape of every one from his own proper sphere. If the state is to improve, it must be by the improvement of its single members; and this can take place only when a true popular education, based in the discipline of every home, shall act upon the special life of separate men and conditions; when the chasm between knowing and acting, between thought and will, between school and life, shall forever disappear; when the eternal holy life of morals and religion shall no more be an affair merely of the understanding; shall no longer be merely laid down, but acted out also;" &c.

In these words, Scherer expresses the truly great and holy idea of a further education of the people, beyond the narrow limits of the common school; of an education which does not rely upon the various limited and one-sided experiences of practical life, or upon chance, or the influence of a party seeking its own aggrandizement merely; but which would effect the necessary changes, and set forth the means by which may be secured the most truly comprehensive and profitable education as men, citizens and Christians; which shall be distinct from all false enlightenment, all hurtful illuminism, both in substance and form, and as extensive as the immovable limits of social condition and of vocation in life, shall permit.

Such a training, of which only the first foundation can be or is commonly laid, at home and at the common school, is not only the most undeniable right of every man in virtue of his destiny and dignity as man, but is becoming every year more absolutely necessary; we might even say every day; in proportion as it is daily more out of the question for any one, without intelligent comprehension and investigation of his business to meet the demands of the progress of general education. The time is already long past, when the mechanic could get well through the world with the ordinary technical knowledge which he gained in the workshop of any master, when the merchant needs nothing except the routine which he had mastered during his short stay behind an employer's counter, and when the farmer was certain of a quiet living if he knew how to plough and sow and was an able workman.

This time, of which so many speak as the golden age, is so long past, that now a carpenter, for instance, does work which used to require a cabinet-maker; and the cabinet-maker produces what would formerly have required an artist. This time is past and will never return; for every practical pursuit, even farming, is now a science, and every trade has its science.

But a really profound and thorough investigation, in the true sense of the words, into these various pursuits, a rational comprehension and pursuit of these separate trades, whatever their names, is only possible when attempted upon the basis of a higher general education. Without this foundation the fixed point is lacking from which it is necessary to proceed; without this foundation, the isolated pursuit of a single occupation can by necessity only result in producing a routinist instead of a man.

Thus we find, as the sacred requirement of morals and of all the conditions of our vocations in life, this continued education of all classes in city and country—an education, universal in scope, comprehensive and thorough.

It was not yesterday that this demand was first heard. Not to go back to a more ancient period, Christ, first of all, expressed this necessity, when as the messenger of God, he proposed for himself the great task of bringing the whole human race to a knowledge of the truth, and through truth to virtue; and through truth and virtue to the higher happiness destined for him.

*(To be continued.)*

### III. DUTIES OF PARENTS AND TEACHERS.

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THE child who has not left the tender embraces of its parents feels hunger and can procure for itself no nourishment; it feels cold and can not clothe itself.

But its father and mother are at hand.

They are attentive to its least cry; they watch the tones of its voice, and observe its complexion and color.

If it laughs, their hearts are full of pleasure; if it cries, they are grieved. If it tries to go, they follow its slightest motions; if it is sick, they have no rest.

They nourish the child and instruct it, until they have developed it into a man.

They trouble themselves in a hundred ways, only to care for the child and to ensure its success in life.

Oh, the virtue of a father and mother is truly infinite; it is like God himself.

*An ancient Chinese emperor.*

When once a female friend from Campania visited Cornelia, the mother of the Gracchi, and in the course of conversation, after an idle fashion, first showed her own rich ornaments, and then requested to see Cornelia's, the latter waited until her two blooming boys, Tiberius and Sempromius, came home from school, and then showed her friend the boys, saying "These are my jewels."

VALERIUS MAXIMUS.

An intelligent father must try to influence his son by good company, and must attend to this, as a chief department of education.

Example, knowledge of men, and admonition, are of prominent importance in education.

The father must so conduct toward the son that the latter shall be sensible of his father's love for him, and then give him more of his confidence than any other man.

As a father who is too strict destroys his son by bad management, so the father who manages him lovingly, and with wise consideration, will first reach his object.

Constraint makes the young obstinate and cunning, so that they deceive first their father and then more easily others.

A good son is obedient to his father out of respect and love, and follows his father's advice.

TERENCE.

It is the highest praise of a noble race, that even in the midst of great wealth they bring up their children to be noble men, a memorial of their family and of themselves.

PLAUTUS.

Children must needs complain of a wicked father, for it is through his means that they are despised.

BIBLE. JESUS the son of SIRACH.

Water-drops wear away stones, and iron is worn out by the hands. But the crooked timbers of a wagon wheel will never regain their natural condition, however much industry is expended on them.

A field good by nature grows wild by neglect; and the better it naturally is, so much the more unfruitful is it if allowed to remain uncultivated.

However rough and hard the ground may be, it will yet, when it has received the necessary cultivation, bear good fruit.

Do not trees by neglect grow crooked and unfruitful, but when properly tended, are they not made fit to bear fruit?

What body is so strong as not to become weakened by disorderly living; and what so weak that training will not strengthen it?

Are not horses, if well broken when colts, obedient to the rider, and those not broken, wild and hard mouthed?

Are not the wildest beasts tamable by assiduity?

Human character considered in this point of view, is a long-fixed habit.

Just as it is necessary that the limbs of a child should have proper management even immediately after its birth, in order that they may grow properly, even so must the moral character, as long as the child is weak and tender, be trained, even from the earliest youth.

The souls of children are as wax, upon which, as with a seal, impressions of wisdom and virtue can easily be made; whereas afterwards, when they have become hardened, they can be erased only with difficulty, and in like manner all new ones are resisted.

Children should early be made to learn useful things.

As the vine-grower drives down stakes near the vines to support them, so must the teacher fasten good teaching and admonitions to children, if they are to possess a good moral character. And to this end children should have only such teachers as unite with a true morality, a rich store of knowledge and experience.

He who does otherwise, is like a sick man who neglects the real physician, but sends for a quack, who by ignorant treatment destroys his life; or like a merchant who turns away the most skillful captain, and employs the least skillful one instead.

A good education, including the proper instruction, is the first, middle and last means by which youth become virtuous; while all other good things, such as riches, high birth, beauty, &c., are in comparison with such an education not worth trying for.

Children must be protected from follies and from intercourse with bad men, and made accustomed to tell the truth; and never to forget that lying is a contemptible thing, and deserving of universal abhorrence.

When parents, from avarice or conscientiousness or ignorance or any other cause, neglect their children, the sad consequences which punish such conduct do not fail to follow.

When such sons grow up to be men, give themselves up to the most frightful vices, and squander all their goods, then, when it is too late, the parents who have ruined them, feel the deepest distress. PLUTARCH.

It is a natural impulse for parents to love their children and to be troubled when they are in trouble; as we see, even in the case of unreasoning beasts, that they will even give their lives for their children.

If one had twenty children, and among them all only one who was good and obedient, that father would feel towards that good child, precisely as he would if he had no others.

Father and mother are in a position similar to God's, as relates to their children; and the paternal feelings of God towards us are excellently represented in them.

But this ought married persons to know; that neither God, Christianity, or all the world, can impose upon them or their children any greater or more useful work, than that they should train up their children well.

This is the directest road to heaven.

And when parents do not industriously perform their duty, it is as unnatural a thing as for fire not to burn, or water not to wet.

And on the other hand, hell can not be more easily served, nor a more

shameful thing be done, than by the neglect of children by their parents, and their being permitted to curse and swear, learn shameful words and songs, and live according to their own wills. LUTHER.

Parents are placed in their station by God, not merely to find their pleasure in their children, or to gratify their curiosity with them; and still less to drive them to anger and to provoke them with excessive punishment; but to bring them up in the nurture and admonition of the Lord.

In like manner as the labors of pious and God-fearing parents are certainly followed by a rich blessing—for pious children are a crown and honor to them, (Prov. xvii ; 6)—so, if parents will not exercise the proper care and pains, but let things go on as they will, do not train their children in the fear of God, but give them over to wickedness and corrupt them, then certainly will God's anger and all manner of curses be upon both parents and children. (Prov. x ; 1.) LUTHER.

The home, the school and the church are the three chief pillars of education.

Therefore this must come to ruin, if one of these pillars is broken down; and most of all does a defect in the first of these corrupt children.

The impressions which the child receives at home, being the first, and enforced by the examples of the father and mother, are the most enduring.

The parents are the first and most influential instructors; and accordingly, most distinguished men have been so fortunate as to enjoy a good home training.

In the relations of the parents to the children, it is of the utmost consequence that, on the subject of education, father and mother should think in harmony.

To this result will contribute the earnestness and firmness of the father, the softness, warmth, patience, and at the same time the proper steady strictness, of the mother.

It is the intermingling of these traits which will complete the ideal of a home education, and is the foundation of happiness in the family.

Those to whom God has given the best gift which he can give to man—children—should find no place of amusement, gaming table, gay society, or theatrical exhibition, any more necessary to them than is the company of their children.

Absences from home should only be occasionally taken, as a necessary recreation and relief, to make them more capable of performing their home duty.

For there may be such a thing as an excess of self-devotion.

But this is exactly calculated to cripple the faculties which are indispensable to the fulfillment of the educational duties.

It admits of no doubt that the mother can do very much not only for the corporeal benefit, but also for the mental development, of her children, if she is an intelligent and true mother.

She usually has her children much about her in their early years; they depend chiefly upon her. She has their youthful minds entirely in her power.

She can therefore do much to direct aright the first development of their perceptions and of their reflective powers; to secure them an early acquaintance with language, the most important means of cultivating the understanding; and that even their little plays may have some reference to a higher purpose.

Even upon sons while growing up into young men—whom so many mothers, even of intelligence, consider as grown beyond their influence—they can have an influence in many ways beneficial. NIEMEYER.

I hold it incontestable, that if the history of all those men were fully known, who have distinguished themselves for uprightness or virtue, it would be found that nine out of ten of them owed these good qualities to their mothers.

It is not now sufficiently understood, how important for the future life is an innocent and blameless youth; how almost all those who have enjoyed this advantage, have owed it to their mothers; and how universally the perfection and the good fortune of men is founded upon female intelligence and female virtue.

ISELIN.

Parents are under obligations to educate their children, because they are required to do so by the voice of nature, regard for their own happiness, and their obligations to society and to the divine organization of the human race.

This education differs from the instruction which the children receive from others; but for this latter they must be prepared in the bosom of the family, and brought up to it.

Parents can therefore not be permitted to neglect this physical, intellectual, and moral and religious training, any more than the furnishing of that civic education which only terminates at years of discretion and fitness for an independent employment.

VON AMMON.

He who can not perform the duties of a father, has no right to become a father.

Neither poverty, nor labor, nor regard for men, can excuse him from bringing up his children and from educating them himself.

I assure every one who has a heart, and who neglects these holy duties, that he will one day weep bitter tears over his fault, and will never escape remorse for it.

ROUSSEAU.

To neglect the education of children, not to do all that is possible for this holy purpose, so far as parents may be able, in their circumstances, not to secure them the best teachers, not to keep them regularly at school, not to instruct them personally as far as possible, not to protect them from vice and by good examples to encourage them to goodness, is worse than to expose young children; it is the murder of their immortal souls.

Children are the most lovely bond of marriage; the best wool on the sheep.

When Dr. Jonas hung up over the table a beautiful bough of cherries in memory of the creation, and praised the magnificence and goodness of God in such fruits, Dr. Martin Luther said:

Why do you not think likewise of your children, the fruit of your bodies, which are more valuable, and more beautiful and wonderful creatures of God, than whole trees full of fruit?

But men go their ways and think nothing of it; yea, are even blind and avaricious about such gifts; as very commonly happens, that people, when they have children, become more and more miserly, and pinch and rake and scrape, that they may leave them the more.

Do you not know that his own portion is set apart for every child even before he comes into the world, and what is to happen to him? And the proverb says, the more children, the better fortune.

Ah, dear Lord God! how great is the blindness and ignorance and villainess of a man who does not consider this, but who misuses the best and most valuable of God's gifts!

LUTHER.

There are no greater benefits than those which parents confer upon their children.

But just as the husbandman renders useless the seed which he has sown, if he gives it no further care, so all the parental care of their children's

bodies is in vain, if they confine their solicitude to the period of childhood, and do not bestow long-continued care upon them. SENECA.

Thy wife shall be as a fruitful vine by the sides of thine house: thy children like olive-plants round about thy table.

Behold, that thus shall the man be that feareth the Lord.

Yea thou shalt see thy children's children, and peace upon Israel.

BIBLE. Ps. cxviii.

Children's clothes should be neat, but not rich, even if the means of the parents will permit it.

For temporal wealth is transitory; while rich clothing usually infects a child's mind with pride.

To cure or hide bodily defects, and to let the soul remain ugly, is nothing but whitewashing a sepulchre full of fashionable bones.

To bring them to baptism, or to the Lord's Supper, and then not to instruct them any further in Christianity, is a dangerous custom. It quenches the spark of faith, and may destroy a soul, which at the last day will cry Ah! and Wo! over the neglect of its parents.

As the years pass on, it is the duty of parents to see that their children learn something which may enable them to be of service to God and to the commonwealth.

Reasonable parents will consider not only for what their sons are fitted, but whether their own means will allow of it.

It is contrary to prudence to risk anything in hazards.

And in particular, it is an over-haste which deserves punishment, to undertake to devote children to a particular calling, even before they are born. Such destinations often have bad results.

It would be well if women were not merely made to stick fast to household affairs, but were to have their understanding cultivated and their moral nature developed, so that together with Martha's attainments in family management, they might with Mary choose the good part. Luke, x; 42.

Moderate correction with the rod, in case of positive obstinacy is better than a foolish bugbear.

Fear and terror are injurious, and often may become impossible to be removed during the whole life.

As reason grows with years, it will be well for parents to instruct children in their duties towards God, themselves, and their neighbors; to exhibit to them the reward of virtue and the punishment of vice, so that they may not go astray and fall into immorality.

Above all, parents should set their children a good example.

For children are like tinder, which quickly catches fire.

The tendency to evil already exists; and if parents nourish it by a bad example, the result is an unreasonable life, and one displeasing to God.

If parents are God-forgotten and vicious, their children will readily be led into the same vices.

Parents should punish their children for all evil deeds, but should seek prudently to avoid the two harmful extremes of too great rashness and too great indulgence.

For the former banishes love from the child, and the latter fear.

He is rather a devil to his children than a father, who denies them necessary food, clothing and maintenance, or who strikes or drives away from him those of them who are silly or deformed or lame.

And he shows a foolish and shallow love, who gives up to all their willfulnesses, and winks at their bad habits.

A middle path is best.

The Bible must be early put into the hands of the children; for this is



the book which brings the just to true wisdom and prudence. (Ps. cxix; civ; ciii: 2 Tim. iii; 15: 1 Tim. iv; 6: Prov. xxii; 19.

CHRISTIAN BUCHNER.

If you are blessed with children, so act that your children shall be carefully trained to the knowledge of God.

If a prince had honored you by presenting you his portrait, and you, out of folly or lack of respect, had permitted it to become covered with dust, cobwebs and dirt, could you hope to receive any further favors from him, if he should become aware of your carelessness, or should see it?

But your children are the image of God.

If you act wrongly by them, the Omniscient will not leave you unpunished.

Men must consecrate to God the firstlings both of their thoughts and of their youth.

Then He will bestow his blessings on the rest.

You ought to pray for and with your children.

When your children have arisen, and are clean, washed and dressed, let them come to you and bid you a good morning.

Then you can see if there is anything wrong about them, and how to adjust it.

Then place them before you, and with uncovered head pray the prayer for parents over them, and bless them with laying on of hands; so that they may hear and understand how the eternal well-being of children is earnestly desired by their parents; so that they may not only be made more obedient, but may in the subsequent management of their own children do the like.

Watch that no wicked habit comes upon the children; for their depraved nature will otherwise always be before their better nature.

Boys and girls should always sleep in separate rooms; and brothers and sisters should not see each other without clothes, after they can go alone.

Wherever possible, each child should have a separate bed.

Do not permit your children to hear loose and frivolous stories.

A child's Bible with pictures, to be explained by you, picture by picture, is the best book for children.

Christian parents should be very careful what sort of persons they have about their children; for from these, if they are immoral or vicious persons, they often learn tricks, improper speeches and curses, which they would otherwise never have heard, much more learned.

Children are, so to speak, like apes; they will imitate what they see.

The children should not understand that their parents are man and wife.

The rod should only be used on important occasions.

Children should be made to give brief and intelligent answers. Permit no obscurity and no conceit of cunning to appear in their words. Do not praise witty children, but rather God-fearing ones.

They should be early cured of coarse and awkward habits.

Empty threats should be avoided.

The love for their children of many parents is a really foolish mere animal instinct.

Many parents admire the foolish and apish gestures and tricks, and even the improper speeches and wicked actions of their children; and thus do not love them as human beings, but amuse themselves with them as if they were young apes.

Many parents, if they have a nice morsel in their dish, give it to their children out of their own mouths, as a hen does to her chickens, and thus accustom them to lickerishness and to dainties, in a way that can produce nothing but corruption.

The more economically children are brought up, the more safely.

Many parents beat and abuse their children for being so rude, ill-trained and boorish.

But the fault is with those who brought them up.

How can your children be well conducted, if you yourself are an uncultivated boor?

If you are a dirty fellow, how can your children be well trained?

It is as the fable reports of the crab, who told her young one not to walk backwards, but forwards. But the young one answered, "Show me the way and I will follow in it."

And that is a very foolish expression of those who say, "My children do not need to make bows. They are not going to be gentlemen."

They are not, truly!

But understand, you blockhead, that decent conduct is appropriate to all. (*Sirach*, xix; 26; *Prov.*, xx; 11.)

Parents should not treat their own children with more respect than those of others.

To do so causes jealousy, however young they are.

It displeases them; and their dissatisfaction grows as they grow older; and will in the end cause dislike, anger, enmity and revenge, even if it is not until the parents are dead.

MOSCHENOSCH.

Parents are indisputably most immediately called, and most naturally bound, to provide for the cultivation of the bodily and intellectual powers of those to whom they have given life.

An instinctive impulse makes them fittest and most skillful to attend to the first necessities of their children, and to endure their weaknesses with patience.

Early habituation to the company of their children makes it almost indispensable to parents in whom the voice of nature is not silenced by unhappy circumstances or by corruption of morals.

They thus learn to feel that these beings, at first so helpless, depend entirely upon their strength and their will; and this feeling which no other person can have so strongly as parents, except, (during their earliest years,) a nurse, strengthens their interest in their little ones.

The home, the family, will always be the most appropriate place for the growth of a child.

A child is like a young plant, to which a too early transplantation is injurious, even if the new soil is the best.

It is only in the family that certain impressions can be received, and certain feelings awakened, which, as being those most distinctively human, should be deeply and strongly rooted in the human breast; such are love of parents, sense of domestic happiness, early sympathy in all that relates to the family; pure susceptibilities, which contain the germ of those feelings for universal humanity, which are so easily quenched for ever.

Children who by accident or convenience, or perhaps the mistaken views of their parents, are thrust too soon out of their homes among strangers, usually cease to be children too soon, and perhaps even to have childish faults, but without becoming for that reason any better.

They omit a step in their experience which, according to the wise arrangements of nature, should not be omitted.

But the advantages above mentioned can only be expected where the parents, by their own example, awaken and nourish the germ of a pure humanity in their children; for this means is undoubtedly more efficient than all possible positive instrumentalities and institutions.

It is entirely natural that children should respect and value nothing so much as what is commended to them by the words and actions of those

whose offspring they are, under whose protection they grow up, and who are thus the first objects of their reverence and love.

The influence, moreover, of constant association, and the tone of family life which proceeds from the character and spirit of parents, have so uninterrupted and strong an influence, although it is imperceptible, that this cause alone will serve to explain all the peculiarities of children, not only the resemblances, but also—for they are not all brought up under the same circumstances and the same time, if they are by the same parents—the dissimilarities of brothers and sisters.

It is true, however, that not even the highest degree of morality and education in parents can of itself protect their children from injuries; for the world and actual life, work along with them, and join in the work of education.

NIEMEYER.

Whoever has a father, or mother, or both, must be educated by him, her, or both; and no one, neither father nor mother, can for gold or good words hire another mother and another father for their children.

Parents can infinitely lighten their duties in this respect, by apportioning to themselves such parts of the child's training as are most proper for each of them, and at the same time a corresponding part of the enjoyment arising from every advance in knowledge or usefulness.

The mutual instructive affections of teacher and pupil, in this care also diminish by at least half, the labor of the occupation.

But what is it that people of rank—the question is worth considering—secure by employing all sorts of nurses for their children?

If the question is rightly answered, this is it:—nurses' stories and all manner of vulgarisms in speech and action.

HIPPEL.

And whether a father or a mother be ever so much absorbed, one in business and labor, the other in domestic affairs, time enough in evenings and unoccupied days to instruct their children in what they themselves know—whether the treasure of their lives and experiences be great or small—to set before them examples from the Holy Scriptures and from life, to impress good advice and pious principles upon their hearts—time enough for this can be commanded even by those who have to earn their daily living by their daily labor.

I recommend my children, O God, to Thee: Thou gavest them to me, and I praise and thank thee therefor with my whole soul. Be their protection; forsake them not; bless and watch over them, so that they may easily walk in thy ways, to Thy satisfaction.

Father! Ah how many dangers await them in this world! Who could escape them unless supported by Thy hand! Let them be free from the dominion of all lusts, pure and pious; let them act only as shall be well pleasing to Thee, and disregard the impulses of vice.

I do not and ought not to pray Thee to preserve them from all afflictions here on earth; nor to reward their virtue here with constant happiness, the granting of every wish and the fulfillment of every hope; nor for such treasures as vanish away.

Give them during the journey of their lives, O Lord, only what to Thy wisdom shall seem good; only what shall render them wise and fit for heaven. If they should turn away from Thee, not all the treasures of earth could compensate for the loss of their soul's happiness.

Let but one petition from me meet a gracious ear;—Let not all their days be entirely joyless. If they are to be proved by Thee, let it be in a paternal manner; and let not their souls be deprived of faith and strength.

Let none of my children, O God, be made miserable by vice. Let none of them be a vexation to his neighbors, nor the sport of his enemies.

Let them be useful to the world, not afraid of exertion nor labor; let them live by the proceeds of their own industry, and thus escape from want.

May the triumphal day of Thy pious one be a day of bliss to me! Help me, that when we appear before Thee, none of mine shall be wanting. Then shall I say with joy, "See, Father, here am I, and here are also those whom Thy grace gave unto me to be trained for heaven."

A father should every day pray to God, "Lord, teach me aright to stand in Thy place towards my children."

RUCKERT. (*Poem.*)

Education in the "nurture and admonition of the Lord," is and must be the principal thing.

All wisdom is not founded in the fear of the Lord,—all corporeal training and artistic skill, are of little use; but the fear of God, a pious Christian feeling, habitude to virtue and good order, the right training of the heart, are useful in all things. They are security for present and future happiness.

Accordingly, it is the holiest of the duties of parents, and universally for church and state, not only to train the understandings of the youthful branches of humanity entrusted to them, but to elevate their hearts, and thus to educate a future generation deserving of happiness and of a blessing.

SCHWABE.

Teachers should treat their pupils as they would their own children; should have pleasure in being with and among them; should love them as affectionately as a good hen does her chickens; for in Donatus, first comes *Amo*, and *Doceo* follows afterwards.

GIZAS.

The teacher should be free from all selfishness; he should love, in his pupils, themselves and humanity; he should not respect a pupil less than himself, but should even observe, with reverence, whether he has not met, in the pupil, an individual of even higher grade of mind and capacity than himself.

The teacher should use all his powers to make his pupil a more valuable man than he himself is.

He should not claim any influence over the pupil than the latter feels of himself.

If love inspire him, and patience assist him, the consciousness of his divine vocation will enable him to overcome the difficulties of his work.

He should employ only such incitements and means of training as are noble, pure, and in harmony with the essential ideas of humanity, and such as unite virtue, love, justice and beauty; so that the pupil may respect him as a true man.

KRAUSE.

The first and principal mark of eminent mental endowments is a memory which easily grasps knowledge, retains it faithfully, and renders it up when desired.

The second mark is imitation.

For it indicates capacity for being taught, if young people endeavor to repeat what they see.

A young man however does not give hopeful indications by trying to imitate for the sake of making others laugh.

If he really has talent, he will be modest; a feeble intellect would be preferable to a vicious tendency.

Yet this modesty will be very different from stupidity or indolence.

What such a boy is taught, he will understand without difficulty.

He will question inquisitively about many things; thus endeavoring rather to follow than to lead.

Too early a development of the mind does not easily bear good fruit.

Such children easily learn some little things, but soon lose their mental activity.

Precocious geniuses accomplish everything quickly, but not much.

What they know has no substantial foundation.

It is like seeds of grain scattered on the surface of the earth, which indeed quickly spring up and put out leaves, but wither before harvest with empty ears.

This rapid faculty of learning is very successful in early youth, but soon comes to a stand, and all admiration of it dies with it.

As soon as a teacher has otherwise examined the capacity of a pupil, he should seek how his mind requires to be managed.

Some, if not stimulated, grow indifferent; others will not endure anything of an imperative nature. Fear restrains some, others it deprives of their spirits. A continuous strictness quite prostrates some, while others are encouraged by it.

A teacher must be able to study the variations of character in his pupils, and to treat them accordingly; and so to instruct each, that the peculiar excellences of his character will be developed, and that thus he will be directed as his powers require.

Nature must advance by means of art.

He who is urged into employments to which he is not adapted, will accomplish no more than he whose mind is neglected.

Examination of the mental faculties and of their reference to instruction is absolutely necessary.

For some show a preference for history, some for poetry, some for law; while others had better be sent to the plough.

But if we find one whose mind is quite corrupt, shall we allow him to proceed with his studies?

It is necessary for a young person to apply himself to something; shall he not be permitted to make any exertions to do so?

If he has any one good natural trait, it ought not to be neglected, but rather strengthened, and existing deficiencies, as far as possible, supplied.

Feeble intellects must be condescended to, at least so far as to learn what their natural tendencies are.

For in this way they may at least accomplish whatever they are capable of.

QUINTILIAN.

The same education, under the same circumstances, may not produce the same virtues; for these differ according to natural endowments. For instance; the manly virtues are more commanding, the womanly more obedient, in character; and in like manner, minds vary in the same sex.

Our endeavors must therefore be directed towards the subjection of the unreasoning part to the reasoning part.

Thus are the virtues produced.

Education is intended to prepare the mind for instruction in moral excellence; as the land is prepared before the seed is sown in it.

Nature has planted within us an innate faculty of knowing and of conscience; by which we decide within ourselves upon existence and non-existence, in doing and not doing, with a yes or no, without any further reasonings.

The better manners are, the better the condition of the whole state; for the power of the law rests in great part upon usage.

If the gods concern themselves about men, that which lies nearest their hearts with regard to them is their nobler part; the improvement of the mind and moral faculties.

For as the eye receives light throughout the surrounding atmosphere, so does the mind through instruction.

ARISTOTLE.

## IV. EARLY TRAINING.

### PHYSICAL EDUCATION.

EDUCATION should be commenced with the first appearance of the child's mind, by the mother and the nurse; in order that the child may already be receiving useful training.

CHRYSIPPUS.

Education must proceed by developing this impulse, [of imitation] which man feels by nature; and must endeavor to lead him by this road to virtue and happiness.

ARISTOTLE.

It is not at the beginning of the seventh year, as Hesiod directs, but at the very earliest age, that the mental training must gradually and progressively begin, in the same way in which the mental faculties of the child themselves develop.

But again the child should not be urged too early to continuous effort, but must rather at first be carried forward in a method more like play.

Nurses should be chosen, having good moral character and correct habits of speaking; for the first impressions upon the child are the most lasting.

In like manner should the child's play-fellows be of irreproachable morals.

The sense of honor should early be brought into activity, and be stimulated by rewards and emulation.

As there are some exercises to which the body can only be trained in youth, so the first elements of education must bring out its principal points. They will be more easily comprehended at that age.

Those parents whose own education was defective, must bestow the more care upon the education of their children.

Although scarcely so much can be taught in the first three years as in one of those which follow next after, still it is in them, that the foundation is laid.

What must sometime be learned should not be begun too late.

Precocious geniuses are of small account. Their knowledge is not firmly based; it is like a seed cast upon the surface of the ground, which withers before it grows up.

All children should in other respects be treated indulgently, and recreative plays should be provided for them; yet still this indulgence should not be carried too far, lest it produce indolence.

Whenever the pupil, from pride, bad disposition or selfishness, does anything wrong, he should be reminded of it; for as Virgil says, "Habit is important for tender youth."

The educator and teacher should have paternal feelings for his pupil, because he supplies to him the place of parents.

The children should every day carry home with them some useful instruction from the mouth of the teacher; for the living voice gives richer nourishment than reading.

The more thoroughly trained the teacher, the better he is.

QUINTILIAN.



Those cities which have bestowed most care upon gymnastics, bring their youth, it is true, to the apparent strength of an athlete; but they destroy the proper beauty and growth of the body. ARISTOTLE.

It is much better to row and dig, mow and throw the spear, run and jump and ride, hunt, fence, cut wood, carry burdens and cultivate the fields, in short to do whatever nature requires, than to practice gymnastics in palaces. GALEN.

Since the body of men comes under our care before the mind, it should be attended to before it. ARISTOTLE.

Why do you nourish and discipline (quite too assiduously) your bodily strength?

Nature has given it to beasts in greater measure.

When you have done all in your power, you will still be surpassed by the beasts. PLATO.

A child has within its mind little or nothing; it therefore learns more easily during childhood; just as we can much more speedily remember the experiences of the morning, than those which happened at a later period.

In after years, accordingly, man does much more by means of his understanding and the developed powers of it.

Man is as it were endowed with two instruments; the hand for the body, and the understanding for the soul.

Both these need development and discipline.

The love of parents for their children is greater than that of the children for their parents, because the former is much increased by recollections and by hopes.

Especially unselfish is the love of a mother; who desires her children to live, not for her sake, but for their own; and who has a strong affection for her children although they have no corresponding one for her.

Mothers love their children more than fathers, because they bring them forth with pain.

But parents should be cautioned lest this love be carried to excess.

ARISTOTLE.

Pregnant women should eat healthful food, should not neglect moderate exercise, and should above all things keep from getting into a passion of any sort, since this would have a bad influence upon the character of the child. SOLON.

A pregnant woman should keep herself as quiet and unexcited as possible.

The mother should nurse her own child when not absolutely impossible; as even she wolves and she bears do.

Spiced food and heating drinks are poison to children.

When the understanding of children awakens, the first foundation must be laid in everything which they will have to learn in after life; in physics, by beginning to learn to know stones, plants, trees, &c.; in optics, by distinguishing light, darkness, colors &c.; in astronomy, by observing the sun, moon and stars, and their movements; in geography, by proceeding from the knowledge of the cradle to that of the room, the home, the street, fields, and so on. COMENIUS.

As good bodily health in youth is the necessary condition of a healthy old age, the bodily exercises of children should not be neglected, and care should at the same time be taken that they are not made to lose their strength; which, according to Plato, is produced by sleep, and hard work.

As we prepare in good weather whatever will be needed in a storm, so in youth must we lay up orderly habits and moderation, as savings against time of age.

Children should be led to industry in useful learning by persuasion and admonition; but never by blows and disgraceful treatment.

But such things only make them disinclined to effort and disgust them with their labor.

Blame and praise should be used alternately; but care should constantly be taken that the former does not discourage, and that the latter does not render over-confident and careless.

As a plant is nourished by moderate watering, but is drowned by too much, so are the mental powers of children strengthened by labors judiciously imposed, but are destroyed by excessive tasks.

Children should never be refused their necessary recreation; it should be remembered that nature has divided our whole lives into labor and recreation.

Thus we slacken the strings of the bow and the lyre, that we may be able to tighten them again.

Children must also be accustomed not to live effeminately, to restrain their tongues, and to overcome their anger.

Yet fathers should remember their own youth, and should not judge too harshly the transgressions of their sons.

As physicians mingle bitter drugs with sweet confections, and thus make what is agreeable a means of administering to the patient what is healthful, so should fathers unite the severity of their punishments with kindness; should sometimes give the reins to the impulses of their sons, and sometimes check them; should be forbearing to a mere error, and even if they suffer themselves to become angry, should recover again from it.

It is often well to pretend not to have observed some action of children.

When we overlook the faults of our friends, should we not sometimes do the same for those of our children?

Children should be taught to be communicative and open; to avoid all that savors of secrecy, which tends to lead them away from uprightness, and to accustom them to wrong.

The understanding is not a vessel, that needs filling; it is fuel, that needs kindling. It is kindled to truth by the faculty of acquiring knowledge, and by love.

He who listens to the speech of another without kindling his understanding at it, as at a light, but contents himself with merely hearing, is like one who goes to a neighbor for fire, but only sits still there and warms himself.

He only receives an appearance of wisdom, like the red color from the shining of a flame; but the inner rust of his soul is not heated; nor is its darkness driven away.

PLUTARCH.

He who disciplines his body is healthy and strong, and many persons have thus rescued their lives from danger, served their friends, been useful to their country, gained fame and glory, and lived a happy life.

The body becomes accustomed to whatever occupation is pursued; and accordingly it should be trained to the best exercises.

Forgetfulness, despondency, ill temper and even frenzy, often assail the mind, in consequence of neglect of bodily discipline, with so much power, as even to cause the loss of what knowledge is already gained.

SOCRATES.

As the power of speech is easily misused, so are gymnastics; for superiority in bodily exercises can easily be abused to the injury of others.

He who practices nothing but gymnastics, is liable to run into barbarous and violent ways, and produces towards himself that slavish state of feeling which does its duty only out of fear.

Where mental training is wanting, the position of man is infinitely low ; he becomes like a beast.

PLATO.

Childhood and youth ought to be the period of cheerfulness, of bodily exercises, of enjoyment and pleasure.

Do not destroy this happiness, ye otherwise tender parents, by too early employing them in the business and duties of a subsequent age, to which they may never attain.

BASEDOW.

Happiness of the human race by means of education.

Man has, corresponding to his threefold home—the mother's womb, earth, and eternity—a threefold life ; vegetative, animal, and spiritual.

All men are in need of instruction ; by which the image of God is restored within them.

Every man is a world in little—a microcosm.

All instruction will meet with easy success, in proportion as its method is according to nature.

Instruction should begin in early youth, and should proceed gradually, according to the development of the capacities. It should begin, not as is common, with languages, but with things.

Kind and loving parents and teachers, cheerful school-rooms, playgrounds, and a stimulating and natural method of instruction, must all be united, in order to make learning pleasant.

COMENIUS.

Mother's milk is the best nourishment for the child, both food and drink ; for it nourishes it well.

Mother's milk is best and healthiest for the child, because it is accustomed to it from birth upwards.

Children who have low nurses turn out like them, as experience shows.

It is therefore unkind and unnatural for a mother not to nurse her child, for God gave her her breasts and her milk for that purpose ; unless she is unable to do it. Need breaks iron, says the proverb.

It was a thing very well imagined and enacted by the ancients, that they caused all persons to have and practice some useful and honorable occupation, so that they might not fall into habits of drunkenness, vice, gormandizing, guzzling, and gaming.

Therefore these two exercises please me best of all, namely, music, and knightly exercises, including fencing, wrestling, &c., of which the first drives care and melancholy thoughts away from the heart, and the second gives handsome and symmetrical proportions to the body, and keeps it in good health by exercise.

Poor people's children, who have only bread and water to eat, are handsomer and more perfect and strong in body, than those of the rich, who have every day their full of all manner of delicacies to eat and drink, and yet are meagre, bony and yellow.

LUTHER.

If you follow nature, the education you give will succeed without giving you trouble and perplexity ; especially if you do not insist upon acquisitions precocious or over-extensive.

Great care must be taken of the body.

Moderate exercise is very strengthening ; and therefore ought nurses—who should be selected with care—to be diligent in carrying children about in fresh air, to the temples, and to visit their relations.

The dispositions of children, instead of being made touchy, irritable or froward by indulgence, or cowardly and slavish by excessive harshness, should be made as open and cheerful as possible, and they should be taught to use either hand alike.

Beginning with the third year, when the intelligence and the power of speech awake, the child should be occupied with plays appropriate to its age. From these plays a judgment may be formed of the child's adaptedness to a future calling.

Changes of toys should not be made too rapidly, for fear of developing instability of character.

From the third to the sixth year, suitable stories should be told the child; and these should be such as to furnish him with ideas of God and of virtue.

Parents and teachers must seek occasion of securing and maintaining influence over children by means of personal respect.

Bodily punishment is only admissible where children or pupils violate the respect due to age, or a law of education.

On the other hand, the sense of shame and of honor should early be awakened.

Parents should be more anxious to instill into their children a deep-seated youthful modesty, than to leave them a pile of gold: and therefore they should carefully keep from the sight of the young all that can injure their modesty or morals.

For where the old are immodest, the shamelessness of the young is increased.

PLATO.

To the mother belongs the bodily nourishment and care of children; to the father, their instruction and education.

The distinction of sexes must early be observed.

Milk is the most natural and therefore the best food for children. Wine injures them by heating them and causing sickness.

Even children at the breast should be accustomed to suitable exercise. Children should early be accustomed to heat and cold, to confirm their health; and all habits should be taught from as early an age as possible.

Children should not be obliged to do actual labor, nor to be instructed, before the fifth year, for fear of stunting them.

The loud crying of children—unless it is caused by sickness—is their first gymnastic exercise.

Their plays should be in the similitude of what they are afterwards to practice in earnest.

ARISTOTLE.

Since children are always possessed of great liveliness and susceptibility, since their powers of observation grow keener and stronger as their consciousness develops, and their impulses to activity are stronger in proportion as their character is nobler, therefore proportionately greater care should be taken to preserve them from immoral influences, to protect and direct the growth of the mind, and to accustom them to proper modes of speech.

Parents and teachers should show to their children and pupils a truly virtuous example; and punishments should be proportioned to faults, and should be so administered as to produce improvement.

Although the virtues of good nature, mildness and placability are high ones, still they must have their limits; and must not interfere with the strictness necessary to maintain the laws.

Man must early be trained to the conviction that the gods are the directors of all things, and that they see the inmost thoughts of men.

It is only by this means that men will be preserved from foolish presumption and from wickedness, as Thales says: That men must live in the consciousness that all around them is filled with the gods. This will keep them more chaste than if they were in the holiest of temples.

From religion, which is a holy fear of the gods, proceed the virtues of modesty, and filial piety.

The peculiar traits of each character should be developed; it should not be attempted to impress a foreign mark upon them; just actors are wont to select not the best parts, but those most suitable to them.

It should not be claimed that there is no art or science of training up to virtue. Remember how absurd it would be to believe that even the most trifling employment has its rules and methods, and at the same time that the highest of all departments of human effort—virtue—can be mastered without instruction and practice. CICERO.

The education of children should begin at their birth.

Bathing children and letting them crawl about are to be recommended.

We came into the world entirely ignorant, and with incapable bodies, but with the capacity to learn.

Man learns incredibly much in the first years of his life, by mere experience, without any instruction at all.

Impressions on the senses supply the first materials of knowledge. Therefore it will be well to present these impressions in a proper order. Especially should the results of seeing be compared with those of feeling.

By motion they learn the idea of space, so that they no longer grasp after distant objects.

Children speak at first a universal natural language, not articulated, but accented and intelligible.

Nurses understand this language better than others, and talk to the children in it.

What words are used in it are indifferent; it is only the accent which is important.

It is assisted also by the children's gestures and the rapid play of their features.

Crying is their expression for hunger, heat, cold, &c.

Their grown up guardians endeavor to understand this crying and to stop it; but often misunderstand it, and try to stop it by flattery or blows.

The first crying of children is a request.

If this is not attended to, they proceed to commanding.

They begin by helping themselves, and end by causing themselves to be waited on.

All the bad conduct of children arises from weakness.

If they are made strong, they will be good.

One who can do all things, will never do anything evil.

Before we come to our understandings, there is no morality in our actions; although we sometimes see manifestations of it in the susceptibilities of children to the actions of others.

The tendencies of children to destructiveness are not the result of wickedness, but of vivid impulses to activity.

Children should be helped when it is necessary; but no notice should be taken of their mere notions; and they should be made to help themselves as much as possible.

Causeless crying will be best cured by taking no notice of it. For even children dislike to exert themselves for nothing.

Crying can be soothed by drawing the child's attention to some striking object, without letting it know that you are paying it any special attention.

Costly playthings are superfluous. Cheap and simple ones are precisely as good.

Nurses can entertain children very much by telling them stories.

Some few easily pronounced words should be often pronounced to the child, names of things which should be shown to them at the same time.

ROUSSEAU.

(To be continued.)

## II. LETTERS TO A YOUNG TEACHER.

BY GIDEON F. THAYER,

Late Principal of Chauncy-Hall School, Boston.

WHETHER the absurd method of teaching Geography, which obtained in the early part of the present century, is now practised to any considerable extent, or not, in our country, is matter of conjecture. In districts remote from educational centres, where few if any conventions of teachers are held, and opportunities for comparing views among members of the fraternity are rare, improvements are tardily introduced, and the traditional modes of a less enlightened day, are, in such localities at least, doubtless adhered to. The memoriter lesson is marked, "Get from *here* to *here*," and, the language learned and recited "word for word like the book," according to order, the pupil is dismissed with approbation,—"perfect, not having missed a word." Ay; he had missed no *word*; but what *ideas* has he acquired? What has he learned of the form of the countries; their relative positions on the earth; the habits of their people; their productions, climate, and so forth? Can he give you any rational account of any of these? Is he able to describe the form of the territory, or its surroundings? Can he indicate the direction of it from his own home, or answer any of the numerous inquiries that the subject naturally suggests to the mind?

When we confine ourselves to the strict and meagre definition of the word *geography*,—a description of the earth,—we exclude a large amount of valuable knowledge, which is so intimately connected with geography, as to be claimed as part and parcel with it; or— if this is saying too much—should, at any rate, be studied along with it.

There is not, perhaps, in the whole range of studies introduced into our schools, one so suggestive as that of geography; a study which so naturally introduces so extensive a circle of connected subjects; subjects that can more appropriately and naturally be taken up with geography than by themselves or in any other connection. Geography, therefore, needs to be *taught*; and, without wholly discarding the text-book, the subject should exist mainly in the teacher's



mind, that, having drawn, as it were, the *text* from the book, the discourse upon it should emanate from the living soul of the instructor. Thus, and thus only, as it seems to me, can that life and spirit be imparted to it so indispensable to infuse the principle of reality.

Hence, there exists a necessity, more or less pressing, for introducing, in these Letters, some account of what may, perhaps, be considered a better method than that of our fathers.

The most effectual way of teaching geography, unquestionably, is to visit the spot of earth under consideration, and *there* make it the subject of inspection, remark and explanation. No description in language can equal this, nor convey to the mind of the learner any conception of the reality to be compared to it. Next to this is the seeing of the figure of it in material form, with due proportions preserved,—the larger the better,—with all the variety introduced that belongs to the original, as far as the size of the copy will admit. Next, a drawing of the same, including all the lines and boundaries, representing countries, districts, cities, seas, rivers, lakes, mountains, &c.

Proceeding in this order, then,—first by personal inspection, second by the artificial globe, and third by maps,—we are prepared for the filling up of language, describing to the learner whatever he may not fully comprehend, and furnishing such information respecting the productions, people, climate, government, and institutions of the region, as are most important to be known.

We will suppose, then, that there is in the school-room an artificial globe, to which the attention of all the pupils is to be called, and the representation of its great natural divisions of land and water pointed out; first, so far as the "four quarters of the globe" are concerned, and the oceans and seas connected therewith. This is as far, perhaps, as the subject could be successfully unfolded to all classes and all ages and grades of mind in the school at once.

The lowest class, or beginners in the study, should now be taught the definitions of the names of the simplest objects,—land and water,—the pupils, at the same time, sketching them, one by one, on their slates or paper,—the teacher having first given their forms and names on the black-board. If the learners first copy the figures from the teacher's drawings, there can be no objection. Many would, doubtless, need this assistance, particularly the very young, at the start. There is no injury done to them by this kind of aid. It is necessary only to stop short of the point where the child's mind and thought are to be principally exercised. At first he will and must be an imitator. Nay, the same instruction must be again and again repeated.

To say that the child is "stupid" will never enlighten him. It may, and doubtless will, mortify him, perhaps discourage him, and excite a spirit of anger or dislike towards the teacher. But great consideration must be exercised towards children, whose stock of ideas is very scanty, and who are entitled to, not only a large extension of patience on the part of the teacher, but of encouragement also.

When the lesson — which should be a short one — has occupied a sufficient amount of time and attention, the black-board should be sponged clean, and the sketches of the pupils be removed from slates and papers. The catechetical exercise should follow; and, as the pupil answers the question, "What is a cape?" he should be required to draw it on the black-board. It will be found useful, at first, mnemonically, to present certain questions in pairs, — giving those relating to land divisions along with the similar ones in connection with the water, — as an island and a lake; a small island and a pond; a cape and a bay; a sea and a continent, &c.

When these simple terms for natural divisions have been fully mastered, so as to be known by sight and name, the child should commence map-drawing. Let it begin with his own play-ground or house-lot, extended to the public square, mall, common, or other well-known enclosure in his neighborhood, and thus carried on till the town or village is pictured before him. If he is capable of it, he should be required to introduce the various mountains, hills, rivers, lakes, ponds, brooks, &c., that are embraced within the limits of the sketch; but this would usually be too much to expect from beginners. Encourage him to attempt all that he can be reasonably expected to accomplish; but nothing more than he can comprehend and explain.

As he advances in grade, he will be able, with similar leading of the teacher, to give the outline of the State in which he lives. This, like the first step, may be made a very interesting class exercise. Let, for example, the subject be the State of Massachusetts. One boy gives, on the black-board, the form of the whole territory; the next is directed to mark the most easterly county; another the next in course; and so on to the most westerly. The most southerly is then described, followed by the next onward toward the north, till the most northerly is indicated. The members of the class are then called on for criticisms, and any one who detects an error in the form or locality of any county, is sent to the board to correct it.

The rivers, mountains, and cities or large towns, are then "located" in the same way; and, if appropriate instruction has been previously given, questions may be put as to the peculiarities of any of them, — as the heights of the mountains; the character of the

rivers—whether navigable, or not; whether used for power in manufacturing, or otherwise; whether affording fish, or not, and what varieties;—and of the cities, as for what, of a remarkable nature, they are distinguished. These details, and others in variety, will, however, as a general thing, be found better adapted to a more advanced stage in the course. But, as far as is attempted, all should be done thoroughly; the exercise to be repeated, from time to time, till every member of the class is familiar with every part of the lesson, and each one can draw the whole, with a good degree of accuracy, from memory.

It is well for the pupil to fix in his mind the resemblance which any country or district of country bears to any object with which he is familiar; as Italy, in the form of a boot; South America, resembling a shoulder of mutton; and the like. Let this resemblance be real or fancied, it will aid him in his task.

When the pupils shall, by this method, have caught the inspiration from the teacher, they may be furnished with an engraved skeleton or outline map, selected at the teacher's discretion, for practice by themselves. Much time, which would otherwise, perhaps, be lost or wasted in idleness, may be thus occupied in filling it up, improving their knowledge of geography, and their style of writing and printing, at the same time.

Some schools that I have known have, by a similar course, become remarkably expert in map-drawing,—securing accuracy of form and proportion, as well as beauty of coloring and penmanship, in the various styles of chirography and pen-printing.\*

The other States of the Union may be taken up in the same way, followed by a combination of the New England States; the Middle, the Southern and Western; and, finally, making a grand review of the United States, in one map. Frequent reviews, from point to point, would be necessary to keep the mind familiar with the ground gone over.

Before proceeding further with the American continent, it would be well to cross the Atlantic, and take up the British Islands; sketch the outline of Great Britain, and fill up, as on this side of the water. Thence, cross the Channel to the continent of Europe; make an outline of the whole, and divide the countries as was done by the counties in the lesson on the State of Massachusetts. Subsequently, draw the countries separately, and practise upon them till the form of each one becomes as familiar to each pupil's eye as that of his

\* That of William B. Fowle, of Boston, especially.

native State. The remainder of the American continent should follow, with the islands along its coasts. Then Africa and Asia. Every region has its points of interest, but a careful discrimination should be exercised, and time and labor be given to those portions of the world a knowledge of which would prove most satisfactory, agreeable, improving, and useful. To devote much time to crowding the memory with many of the names of places in Africa, for instance, which one would scarcely meet with, except in a treatise on Geography, in the whole subsequent course of his life, would hardly be a wise appropriation of time and study.\*

Europe, in its various divisions of Northern, Southern, Central, &c., concentrating so many specimens of grandeur, beauty, natural curiosities and interesting phenomena, and presenting, in its historical records, such a storehouse of the wonderful, the heroic, the patriotic, the scientific, the brave, the self-sacrificing, and the patiently enduring,—besides having been the home of our fathers,—will naturally be found the most attractive and interesting to the learner, of the various foreign regions of the world. He should therefore dwell longest upon, and make himself best acquainted with, that portion of the world; and, as I have before intimated, should be directed by the teacher, as he is mapping out the different parts of Europe, either as countries, districts, or cities, to the birthplaces of the world's benefactors; the scenes of their labors, their sufferings, or their glory. He should remember the good of all creeds,—Plato and Aristides, Brutus and the Gracchi, Alfred and Charlemagne, Gustavus Vasa and William Tell, Laplace and Humboldt, Shakspeare and Milton, Newton and Wilberforce, Fennel and Jenner, and Hannah More and Grace Darling, and Mrs. Frye and Florence Nightingale,—omitting none of either sex, wherever humanity demands a notice of them.

Palestine and other parts of Asia will also readily attract his attention, and the scenes in which the patriarchs and prophets of the

\* It is not indispensable that the precise order of the maps attempted, as above indicated, should be invariably followed. There may be a better arrangement. In some atlases a convenient and rational order is laid down; and if outline maps, adapted to them, can be had, they will prove an important gain to the learner. My object is to secure a rational and regularly progressive order, which with some is sacrificed to inadequate considerations.

It would be nearly, if not quite, impossible for the pupil, in the usual time devoted to school education, to draw a map or maps of every considerable portion of the globe, without injustice to other studies. It is, therefore, proper to begin with those in which we have the greatest interest, or with whose inhabitants we cherish friendly or business relations. After this suggestion, the teacher's own reflection will be a sufficient guide.

Hebrews took part, and those which were rendered sacred and memorable by the establishment of the Christian religion and the attendant "mighty works" and sufferings of its great Head,—Bethlehem, Nazareth, Jerusalem, Capernaum, Mounts Zion and Tabor, and the Mount of Olives,—all these should be pointed out. The birthplace of Paul; the isle of Patmos, where John closed his long and memorable life; and whatever else of equal interest is known concerning these and other distinguished men, who figured in the sacred history and geography of their times.

In sketching the maps of our own country, the same course should be pursued, and the pupil's attention drawn not only to the birthplaces of the great and good men who have lived and left examples behind for our benefit and imitation, but also to the spots consecrated by their deeds, or by their blood shed in the cause of national freedom, as Lexington, Bunker Hill, Yorktown, Saratoga, Trenton, Long Island. These, with their heroes and martyrs, should be commemorated. Mere military success I should not deem sufficient cause to "make a note of;" but in other countries, as well as in our own, where victory in battle had enabled an oppressed people to throw off the yoke of tyranny, or assist in setting a nation free, I would direct the attention of the learner to it, and to the leading spirits of the struggle. And this would introduce such places as Marathon, Thermopylæ, and Bannockburn.

If it be objected that this is *history* or *biography*, I reply, that no better auxiliary to the teaching of *geography* can be introduced than those facts and men, which places on the earth bring to the mind, when they are truly memorable in themselves. I would further maintain that *geography* and *history* should not be separated, but be always taught and studied together. One assists in acquiring and retaining the memory of the other, and both increase in interest from the union.

The teacher may throw in many a useful word to his pupils in their process of map-drawing, especially in regard to the ridges or chains of mountains in the several continents—how they follow, in their direction, apparently, one particular law or rule in one hemisphere, and a different one in another; so that an observant eye may distinguish the country to which the mountains belong, simply by the direction and relations of the mountains themselves. So in regard to the course of rivers, whose tendencies are in uniform directions in neighboring localities. The teacher will here indicate the cause of this, and also, when their directions vary, state what is the cause of such variation.

The pupil observes, that, in some parts of the world, there are but

few rivers. He may not speak of this, but should have the reason for the fact stated to him. He finds, too, that in some countries there is little or no rain; in others, a great deal; and in others still, periodical seasons of rain, lasting for months together. Tell him why it is so. Also, the causes of the trade winds, whose operations seem so wonderful, and yet are made so subservient to the welfare of the mercantile world.

Let him know something of longitude and latitude, and, as soon as he is able to comprehend their meaning, give him simple problems, to test the utility of this knowledge. In travelling, he hears his father say his watch is too slow, and that they are about two hundred miles from home, in an easterly direction. Ask him the longitude of the place, and if he knows the longitude of his own residence, he will say it is  $—^{\circ}$ , or about three degrees less than at his own home, and that the watch is twelve minutes slow. Or, he has travelled in an opposite direction about ninety miles, and his watch is fast, and he may perceive and say that the watch is fast six minutes, and the longitude is one and a half degrees greater than at his own residence. He reads in a newspaper that a ship has been spoken at sea, in a given latitude and longitude, and, turning to a map covering that point, he will see just where the vessel was, at the particular hour when she was seen and spoken.

Tell him, at this stage of his progress, that while we measure the sun's *time* east and west, we reckon his degree of *heat* north and south. Hence he will perceive that, in going from this latitude towards the north pole, the cold will continually increase; and that in travelling in the opposite direction, till he reaches the equator, the heat increases in a similar ratio. Give him next some account of the zones, and the causes of the varied temperature in each. Direct his attention to the productions of these widely-differing portions of the globe. He will perceive that they are distinctly marked in every department of creation, — man, beast, reptile, bird, vegetable, fruit, flower, — and that the production of one zone is rarely found living or growing spontaneously within another, excepting in contiguous or proximating parts. Tell him where to look for the strong, industrious, intelligent, matter-of-fact man, who earns his subsistence and makes the world happier by his labor; and show him that the animals, the fruits, and the vegetable productions of that zone partake of qualities adapted to just that race of men.

The same may be said of the others. Where the physical wants of man are few, little in the way of labor is required of him. Excessive heat abates his strength, and nature feeds and clothes him from



her ample storehouse. She feasts him on her luscious fruits, regales his ear with her rich music, fascinates his eye with her gorgeous coloring, and ravishes his smell with her exquisite odors.

In others, again,—in the colder portions,—where little grows or can grow, the inhabitants are few, and they become inured to hardship, and do but little else than perform the natural functions which carry them through a brief and precarious existence. The few brute animals and vegetable productions thereof, partake of the same low grade of properties and qualities, and exhibit a rigid adaptation to what may be termed the law of the climate.

Hence, the pupil may be led to know what to expect from man, beast, fruit, and flower, by ascertaining the part of the globe—mainly the latitude—in which they are found. Taking a list of the districts of a country, cities, and large towns, and comparing them, the known with the unknown, a pretty correct idea may be formed of the temperature and natural productions of each; the probable vigor, effeminacy, and habits of the people. This rule is not to be taken without limitation, for modifications, more or less considerable, are produced by circumstances, which should be pointed out by the teacher.

An agreeable mode of giving a practical character to this part of our subject, and one that is adopted in some schools, is, for the teacher to read from a mercantile newspaper some of the various advertisements of the merchants, making them texts to be commented upon, and to form the basis of a catechetical exercise. Here we read of tea, gunny bags, saltpetre, mace, sumac, spelter, coffee, indigo, cassia, opium, sugar, hemp. Now the question is, first, Whence came they? or, in more familiar language, Where did they come from? This question may be followed by others, in variety, to any extent that the time of the teacher will permit; as, Where is the *place*? is it a city? an island? *what* is the article advertised? what are other productions of the same place or country? the habits of the people? their history? their government? the population of their chief cities? their religion? &c.; bringing out more thought and imparting more information than the same amount of time could do in almost any other course. I am aware that the lack of *time* would not allow every teacher to indulge himself and his school, to any great extent, in this interesting and useful exercise; but still, in my judgment, if but fifteen minutes daily were to be thus appropriated, the advantage to the school would be great, and the good effects on the *families* represented therein would be strikingly observable. How many persons there are, on all sides of us, that have not the slightest idea, even, of the countries which produce the most common articles of daily domestic consump-

tion or use, and even the meaning of the names of many articles constantly advertised in commercial papers! What is learned at school is usually talked about at home; and especially any new idea about *things*, that comes to the learner in a pleasant way, without the formality of an assigned task, and, consequently, without study.

In connection with this exercise, the routes usually pursued by navigators to and from the several ports, from which the articles of commerce, that become the subject of conversation, are imported, would be found a matter of curiosity and interest; and I believe none of our school-books in present use refer to the subject at all. I do not complain of this, but would recommend to the teacher to introduce it along with this miscellaneous exercise, as sure to give much satisfaction to the inquiring minds among his pupils. Caleb Bingham, the best teacher that Boston had in his time, had some questions and answers of this kind, in his little work, called *The Geographical Catechism*, which in my childhood was a great favorite with me, and whose impression, although many a long year has passed since I studied it as a class-book, is still vivid and pleasant in my memory.

Among other facilities for illustrating the subject of geography, are the raised maps, or maps in relief, representing the inequalities of the surface of the earth. These maps are found highly useful with the advanced classes of a school, whose members are capable of comprehending the scale of comparison introduced, and always fix and reward their attention. They are confined principally to mountainous countries, but are not without interest when typifying those that are comparatively flat. Several have been imported, representing Italy, Switzerland, Europe, Germany and the Netherlands, France and Belgium, Mont Blanc and environs, and others,—whose most prominent mountains can be easily recognized by those who have travelled in the several countries, and have felt a sufficient interest in the subject to ascend their grand elevations, and institute comparisons between them. Those of the greatest altitudes loom up, even in these miniature models, with a degree of grandeur not readily anticipated, when the scale on which they are necessarily projected for school uses is considered; and they challenge the admiration of the young student, as, assisted by them and his own imagination, he climbs their snowy tops, and looks, almost giddy, into the vales below.

In some portions of a country denominated “hilly,” the surface of the map is little more irregular than the outside of an orange; while that of others, like Mont Blanc, presents very striking elevations.

Thus, from the ordinary hill to the lofty peaks of the Alps, a careful, and, apparently, correctly-graduated scale, is adopted and followed throughout. Every teacher, therefore, who can command a set of these maps, would find great utility in their use.

They might be used to advantage in connection with the engraved classification of mountains, found in many school atlases.

The mere learning by rote of the names and heights of mountains, of the elevations and depressions from the surface of the sea of various territories, can make no impression on the mind to compare in permanency with what is acquired through the medium of the eye, assisted by the judgment; and hence these maps have claims superior to the other means of instruction and illustration, which have usually been found in the schools.

I have purposely avoided making the discriminations of Physical, Mathematical, and Political geography, because I wished to range freely and at large over the wide field embraced in the general subject; and because I believe that, in traversing the surface of the globe, unfettered by technicalities or rigid rules, I could appropriately touch upon any topic having near relations to the soil, and what it is producing, or has produced, worthy of being known to the young. Method is well, and there are studies which require a rigorous adherence to it, and particularly as the student advances in years and mental capacity; but, as I wander with my pupil, for a peripatetic lesson, and call his attention to the flower by the wayside, the rock of the crag, or the lofty tree of the forest, so, in the survey of the crust of the planet we inhabit, I cannot willingly pass specimens of the striking, the noble, or the instructive, without endeavoring to turn it to a profitable account.

We cannot make the school-boy's task too agreeable. There is no danger that he will not have labor enough, and vexation enough, and confinement to his books and the school-room sufficient to exercise all his patience and temper, his memory, his reasoning powers, and his physical endurance,—give him what auxiliaries we may. And this should always be borne in mind. The work that he is capable of doing I would require of him; but whatever of sunlight can be thrown in upon his path of intellectual toil should not be withheld. He will then not only acquire more, and comprehend what might otherwise be obscure in his mind, but will *enjoy* as he labors, and thus be encouraged to press on to higher and nobler attainments, urged by his own wishes and feelings, rather than by the requisitions of those who direct him. This is not only desirable for the pupil's sake, but changes the teacher's task to a delightful recreation.

### III. SCHOOL ARCHITECTURE.

#### PLANS OF UNION SCHOOL-HOUSE IN ANN ARBOR, MICHIGAN.

THE grounds of the Public High School or Union School in the city of Ann Arbor, Michigan, occupy an entire square—in the center of which (Figure 2) the building stands. That portion which is in front is planted with trees and shrubbery, so dispersed with intervals of green sward and parterres of flowers, by an experienced gardener, as to produce the finest effect. The portion in the rear is divided into two yards, appropriately fitted up for the recreations of either sex.

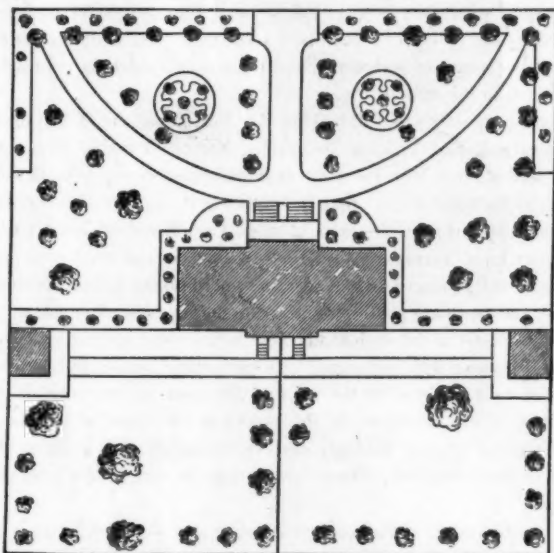
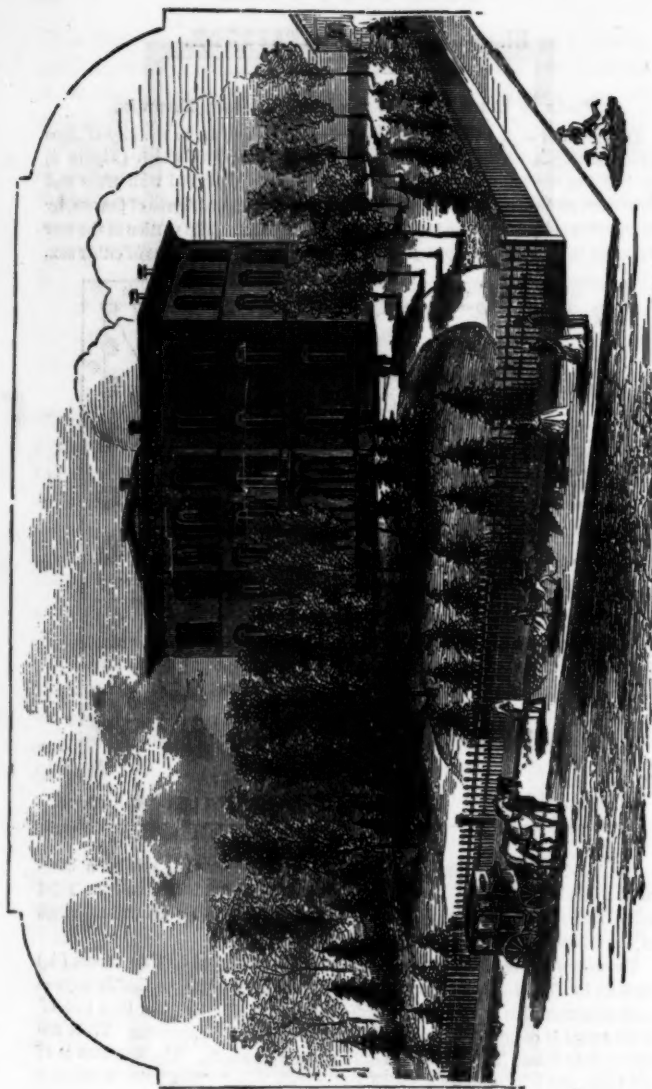


Fig. 2. GROUNDS.

The building is three stories high, as is shown in Figure 1, besides a basement 9 feet high. The first and second stories are each 12 feet, and the third story, which is finished in one hall, used for chapel and other general exercises of the school, is 16 feet in the clear.

The two wings on the first and second floors are occupied by class-rooms, (A.) each 36 by 37 feet—those on one side for girls and those on the other for boys—each class-room having a large recitation room (B) On the lower floor one of these rooms is occupied by the library, and the other by apparatus. There are appropriate rooms (D. E. C.) for depositing outer garments. The furniture is of the latest and best style for strength and convenience. Ventilation is secured by separate flues, (V.) and the entire building is heated by air, warmed by furnaces in the basement, and introduced at different points (h.)

The grounds, the school-house, and the school constitute one of the attractions of Ann Arbor.



PUBLIC SCHOOL IN ANN ARBOR, MICHIGAN.

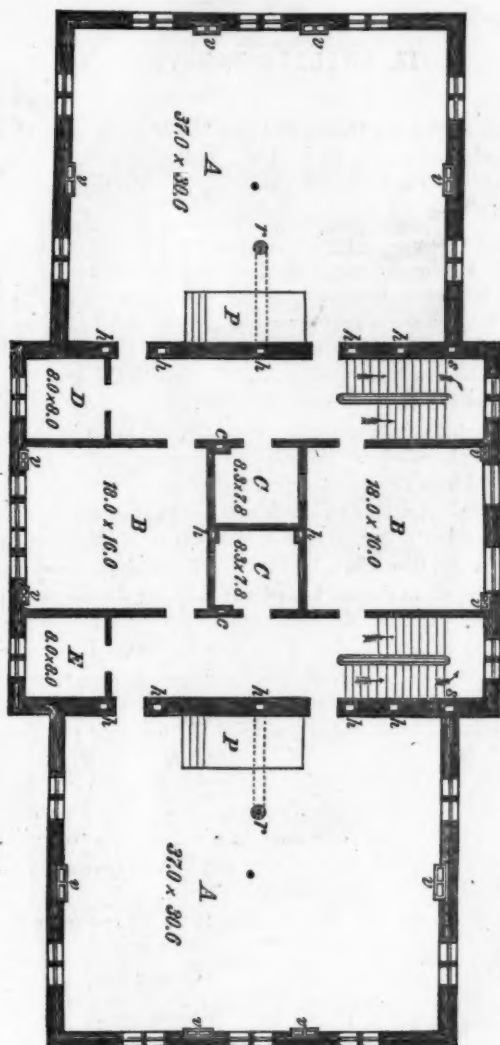


Fig. 3. FIRST AND SECOND FLOORS.



#### IV. CHARLES E. HOVEY.

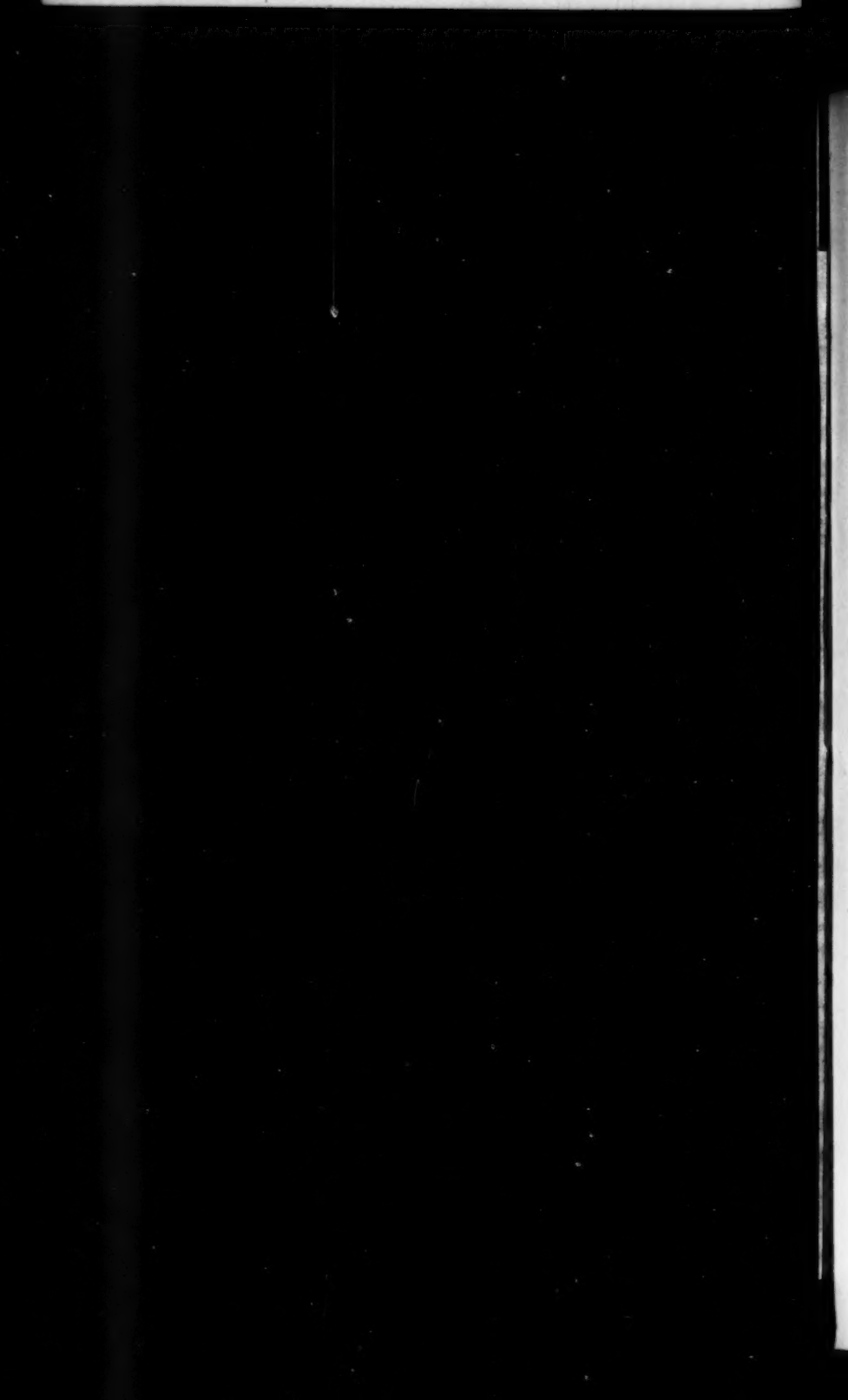
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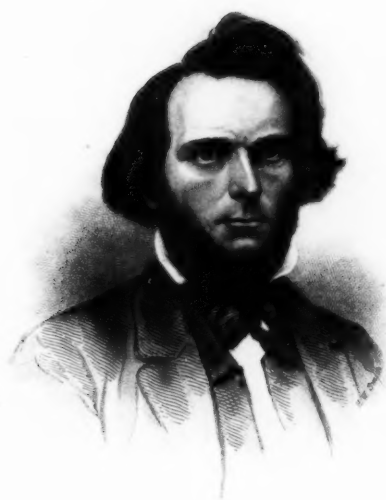
CHARLES EDWARD HOVEY, first principal of the Normal University of Illinois, was born in Thetford, Vt., April 26th, 1827. His parents were intelligent and laborious; wringing from the hard soil of a New England farm the comforts but not the luxuries of life for a large family of children. Appreciating the value of education, they not only gave their children, without distinction, the benefit of common school instruction, such as it was a quarter of a century ago in Vermont, but also encouraged several of them to seek by their own exertion for knowledge at higher sources. Two of them, besides the subject of this sketch, are graduates of Dartmouth College.

In boyhood, Mr. Hovey was distinguished for activity and boldness. He had no special predilection for study, and made no rapid strides in gaining knowledge. He kept pace, however, in his progress, with those of his own age, and early conceived an admiration for the office of teacher. A desire to reach this exalted position may be numbered, the writer has reason to believe, with the chief incentives to study which at that time affected his mind. When about sixteen years of age, he began to prepare for college; studying for the most part in the academy of his native town, and obtaining the requisite funds by "teaching school" during the winter months. His success as a teacher, at this early period, was, in his own opinion, very moderate. Having no adequate conception of his work, he observed the customary routine of labor, and was satisfied if "the sums were done" and the scholars "made to mind." Whether, however, his standard of duty was then lower than that of many teachers who enter the school-room for the winter, giving the rest of the year to other pursuits, may perhaps be doubtful; for men do not commonly honor with their highest respect and love a calling to which they resort, for a brief period only, *in transitu* to something better.

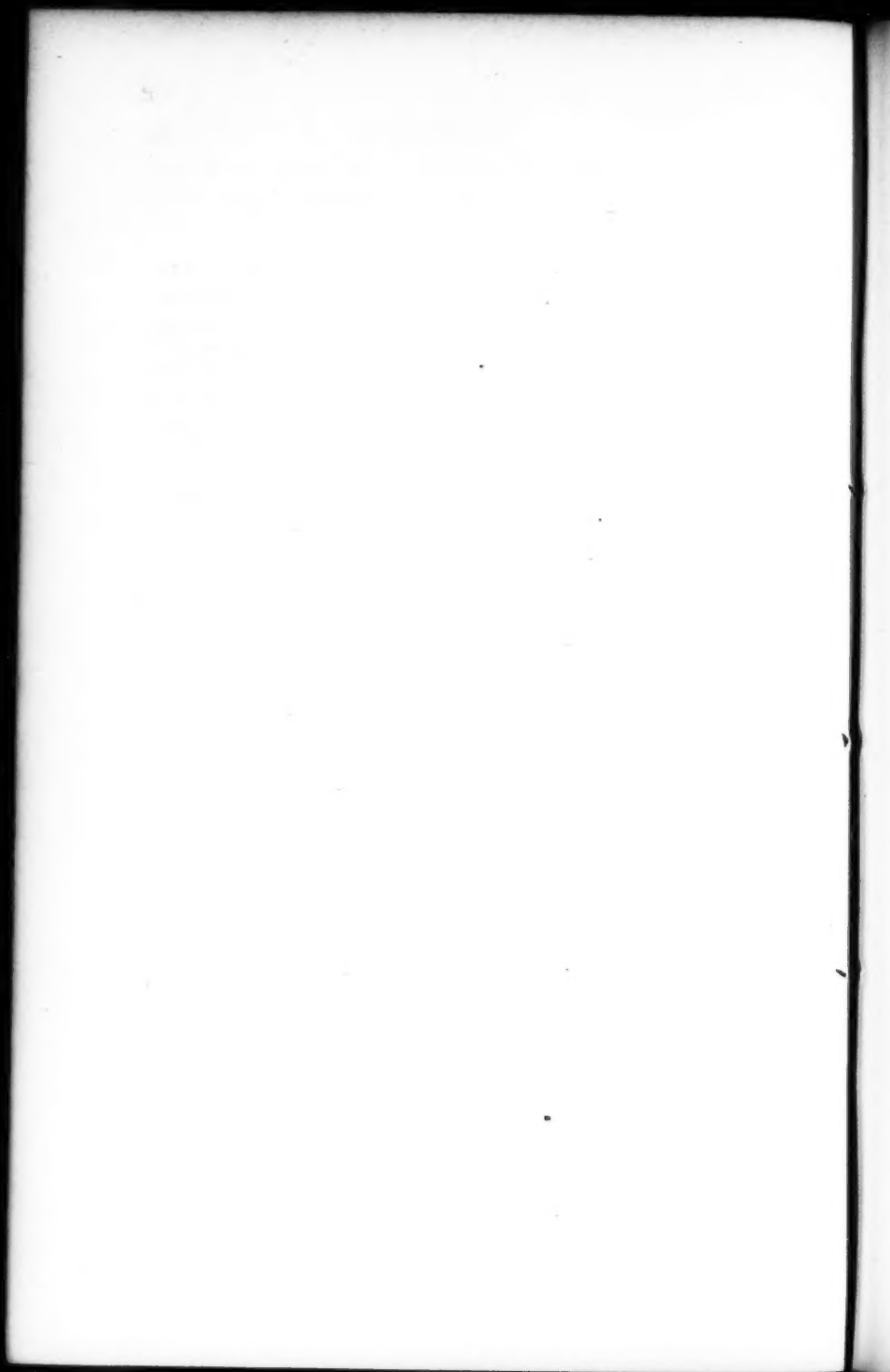
Mr. Hovey entered college in July, 1848, and pursued with energy the regular course of study. His standing as a scholar was good; but he exhibited no special preference for any one branch of knowledge. His love of public speaking and debate was marked, and several orations which he delivered attracted considerable attention. Social, active, and energetic, he was generally successful in accomplishing his purposes. In the last year of his course, he was elected president of the "Social Friends" by a handsome majority. One-







*C. C. Hovey* —



half the undergraduates were members of this society, and the other half of the "United Fraternity." The presidency of one of these societies was esteemed the highest honor which the students were able to confer upon any of their number.

The winters of his college course were spent by Mr. Hovey in Massachusetts. His first school was in the town of Boxford, where he began at length to appreciate the teacher's work and to feel his own deficiencies. "He was faithful, efficient, exemplary, energetic, and talented," says a resident of the place, "loved by his pupils, by their parents, and by those who became acquainted with him." The next three winters were passed in the town of Newton, and the following letter from Dr. Henry Bigelow, chairman of the school committee, will sufficiently characterize his labors.

NEWTON, Mass., Nov. 16, 1858.

Dear Sir:—I have received your note of inquiry, and shall take pleasure in answering it to the best of my ability, as I have very pleasant and vivid recollections of Mr. Hovey's service with us. And this, not on account of any very prominent success he had as a teacher, for his field of operations while in our town was very limited, and by no means of good soil or previous good culture. I remember him as a man of energy, ambition, and natural and acquired habits of mind which would have insured him larger results had he enjoyed a better opportunity for their display. He taught one of our district schools for three consecutive winters. It was esteemed the most backward of all our schools, partly perhaps from locality, partly perhaps from other causes whose mention would not be pertinent to the present object. Into this school our friend speedily introduced a new era—one of life, order, and earnest work. Into this community he infused a new interest in behalf of the education of their children. He was also able to awaken in the people themselves not a little zeal for self-improvement by methods easily adopted during the long evenings of winter. It was astonishing how thoroughly he had the people under his control; his activity and devotion having first won their confidence. He put his hands unforbidden into their pockets, and supplied his school-room with the best outline maps, a clock, thermometer, etc.; he magnetized them with his educational ardor, and drew them unresistingly to the evening assemblies at his school-room, where he at once organized an association for discussion or other profitable engagements; and he divided them into small committees, who should in turn visit and observe his daily work among their children. All this, you will see, made a deep, an abiding, a salutary impression. And, when you consider that this was not done in a community possessed of much cultivation, or which had awakened to a sense of the value of an education, or of the necessity of much effort on its own part to insure the success of its school system, but rather the reverse, and that the actor came a stranger and merely as a temporary visitor, you will grant that he deserves credit for much natural energy as well as for a spirit of disinterested self-sacrifice. Thus people showed their respect for him, not only by doing his bidding, but repeatedly by more specific evidences of a gratifying nature.

I ought to allude here to the active interest which Mr. Hovey always took in the "Teachers' Association" of this town. He was prompt at all meetings and foremost in devising methods to secure an interest among others, and always ready to bear his part in all the active duties of the organization. In fact, some charged him with being too forward—an accusation very commonly thrown, from those too diffident or too incompetent, at those who, perhaps from conscious power, take the prominent places and hold them. More delicacy of character at that time might have drawn to him more friends among his fellow-teachers, but that was doubtless to appear, when the ardor of youth and the zeal of first beginnings should become tempered with the experiences of manhood and a larger jostling with the world. Excuse me for not being more explicit and more at length.

Yours, very respectfully,

HENRY BIGELOW.



Soon after leaving college, Mr. Hovey took charge of the high school in Framingham, Mass. This school had been in operation but one year, having taken the place of the Framingham Academy. Its first principal, an excellent teacher, did not remain with the school long enough to fix its character. The labors of Mr. Hovey in this place fully justified the confidence reposed in his ability and fidelity. Says the Rev. Mr. Northrup, at that time chairman of the school committee of Framingham and now agent of the Massachusetts Board of Education:—"Mr. Hovey, when in Framingham, evinced great tact and untiring energy. He had the happy faculty of inspiring his pupils with his own enthusiasm, which was always fresh and unflagging. He seemed to impart his own spirit to them, and, by a sort of spiritual magnetism, win and attract them to himself. He had unbounded influence over his pupils, having won their affections and gained their confidence. Hence his government was both firm and kind. His authority was absolute, yet cordially accepted and freely and cheerfully assented to. The perfect order of the school, the prompt and cheerful obedience, the entire absence of all communications, all evince the accomplished disciplinarian. He had remarkable power to rouse the indolent, encourage the desponding, and stimulate his pupils to activity and exertion. His versatility of mind and ample resources enabled him always to interest his pupils. They still remember him with great interest and affection. One of them said to me, a short time since, 'Mr. Hovey was by far the best teacher I ever had.'" It may be well to add the testimony of a fellow-teacher:—"He was an *enthusiastic* teacher, generally much beloved by his pupils. I always liked him as a brother teacher. He was ready and willing to give assistance whenever called upon. I can remember instances when he rendered me great service, in so delicate a manner that no one else would have suspected his intentions. He organized a teachers' meeting this winter, also a literary society and debating club, which was popular and profitable. His purse was open to the wants of the school-room."

It is evident, from these and similar testimonies, that Mr. Hovey possessed the rarest qualification of a teacher—the power of drawing out the pupil, of provoking investigation, of *educating* the mind, in the primitive sense of that term.

At the close of this second year, Mr. Hovey left Framingham for Peoria, Illinois. Prior to 1850, this city had not been distinguished for school privileges. But during that year an association was formed by some of the citizens, to provide for the education of their daughters. A house was built, designed to accommodate fifty-six pupils,

and was so enlarged the next year as to receive twenty-five more. Fixed salaries were paid to the teachers, and an officer was elected by the stockholders to look after the general interests of the school and to act as treasurer. This school was quite successful; but the first building was destroyed by fire in 1854, and a new one erected large enough for one hundred and sixty pupils. The same year an association was organized for the purpose of founding a boys' school. Hon. Onslow Peters, whose name is held in grateful remembrance by all friends of education in Peoria, was president of this organization. A. P. Bartlett, Esq., now president of the City School Board, and J. W. Hansel, also a member of the present board, sought for a teacher; and, in the course of a visit to the East, engaged Mr. Hovey as principal of the new school. He did not, however, remove to the West until another step of great importance had been taken. Although his devotion to the work of teaching had been uncommonly earnest, he had, it seems, found time for other duties, and he was married, accordingly, October 9, 1854, to Miss Harriette F. Spofford, of North Andover, Mass., who was to be associated with him in the school at Peoria.

The two schools now entered upon a prosperous career. The people showed themselves ready to sustain every judicious measure with the requisite funds and with their moral support. Yet, while every thing was done on a liberal scale, no money was wasted, and no debts were incurred to embarrass the schools. The directors did not bend their rules to meet the wishes of truant boys and fault-finding parents, but undertook to encourage the faithful rather than indulge the delinquent. It was their aim to secure a thorough education to the pupils, and no murmurs at their wholesome regulations caused them to swerve from this aim. The wishes and efforts of Mr. Hovey were ably supported by them, and the success of his school was insured by their cordial support. Among those who contributed most to this result may be mentioned the names of Judge Peters and Mr. A. P. Bartlett.

Mr. Hovey had not been long in Peoria before he thought there was hope for the public schools. At his suggestion, an act was procured, in the winter of 1854-5, putting the schools under the control of the city. This act separated school interests from politics by providing for the election of a board by the people, which board had no connection with the city council. By an amendment, provision was made that one-third of the board shall be elected annually, thus keeping in office a majority of those who were familiar with the duties and previous action of the body. And it deserves to be noted that the very men who had taken the deepest interest in the stock schools sustained vigorously this movement for the public schools. Indeed,

the stock schools were soon merged in the public school system. The buildings occupied by them were purchased by the city, and a public high school was established, of which Mr. Hovey was the first principal. He was also superintendent of the city schools during a part of the first year of the new organization. At the close of this year he resigned the former office and gave himself to the labors of superintendency until the summer of 1857.

While in the stock school, Mr. Hovey organized an association of the Peoria teachers, by means of which new methods of teaching and management began to obtain in the schools. During his superintendency, they looked upon him as one "whose very presence cheered teacher and pupil; who knew just what teachers could do, and could appreciate their efforts where they were trying to do something."

The change thus effected in the school system and privileges of Peoria—a rapid and most gratifying change—was due, in a great measure, to the suggestions and efforts of Mr. Hovey. Said a prominent supporter of the stock schools as well as of the new system:—"We hired Mr. Hovey to take the boys' stock school, and, if he had taken no steps to bring about a change, he might have staid there till to-day." Yet the writer would by no means trace the establishment of graded schools in Peoria to the influence of one man. This great and beneficent result was secured by co-operation and public spirit on the part of the citizens generally, and by the energy and wisdom of a noble few who led off in the movement. While they suggested, others executed, and the work was done.

But Mr. Hovey was not allowed to confine his labors to a single school, city, or association. He had acquired a state reputation, and the outside drafts upon his time and thoughts were neither few nor unhonored. He engaged actively in all the great state educational movements then in progress, or about to be started; frequently traveling from fifteen to fifty miles after school to lecture, and returning in time for the morrow's duties.

As a speaker, he "talks right on," omitting all ornament, intent only on carrying his point. He often tells his audiences that he "can not afford to waste his time and theirs in reading figures of rhetoric."

The first regular meeting of the Illinois State Teachers' Association was held in Peoria, during Christmas week of 1854, and of course but a short time after his arrival in the place. "*The Illinois Teacher*," was started at this meeting, to further the educational interests of the state. It was published the first year at Bloomington, with a local and twelve monthly editors; but its list of subscribers was less than three hundred in all, and, at the meeting in Springfield, the next year,

(1855,) the question arose, "Shall we give it up, or try some other plan?" The result of discussion and conference was, that Mr. Hovey, who had been elected president of the association, was likewise appointed editor, responsible for the whole care of the journal, literary and financial. It seemed a desperate undertaking. The previous publishers merely uttered the general impression, when they published the remark that, "if Mr. Hovey had \$500 or \$1,000, which he wanted to throw away in a good cause, he had an opportunity." But by his own enterprise, with the aid of educational friends and good publishers, the "*Teacher*" soon had a respectable circulation of more than seventeen hundred. It was published, indeed, the first year at a pecuniary loss, the loss being increased by the burning of a number ready for issue; but the circulation increased to over two thousand, and there was a small surplus at the close of the second year, so that the editor was left unincumbered with debt, though with no compensation for his labor. The "*Teacher*" was now a paying journal.

By means of this monthly, Mr. Hovey and other friends of education advocated various measures adapted to raise the standard of popular education, and especially the establishment of a school for the training of teachers. As the fruit of these and similar efforts, essential changes were effected in the school law, and the principle of "free schools supported by taxation" was embodied in it. The sentiment in favor of a normal school gained constantly in depth and strength, until the popular will found expression in the normal school act of 1856-7.\*

The act required the university to be located where the most favorable offer should be made; and, had not Peoria been compelled to compete against a grant of public lands to the value of \$70,000, the location must inevitably have been there.

It is but just to say that much the largest amount of ready money (\$50,000) was offered by Peoria, where the utmost enthusiasm prevailed in subscribing for the location. Owing to the deep interest which had been awakened in this city by the efforts of Mr. Hovey and others, all classes of men, from the wealthy banker down to the poor laborer in the street, were ready to give; and, had it been thought necessary, a much larger sum, it is said, would have been pledged.

But the institution was awarded to McLean County, in consideration of her donation of \$70,000 in lands and subscriptions by her citizens of an equal amount. In May, 1857, Messrs. Rex and Hovey

\* At this time Mr. Powell was superintendent of public instruction, Mr. Hovey editor of the "*Illinois Teacher*," and Simeon Wright president of the State Teachers' Association and chairman of the committee of "lobby members" to the legislature, commissioned by the executive committee of the association to prepare and urge the passage of a bill creating such an institution.

were appointed "to visit various normal and high schools of the East, to report on the subject of building, internal arrangements," etc. Their report was presented June 23d, and at the same meeting Mr. Hovey was recommended by the committee on officers, and elected principal of the university. On the 18th of August it was resolved to hire rooms and open the school the ensuing autumn. This was accordingly done; and, on the morning of October 5th, Mr. Hovey and Mr. Ira Moore, with whose labors the growth and success of the school are yet identified, were in a large hall, ready for the pupils. To be sure the proper furniture of the hall had not arrived, and the number of pupils who came on that day was only nineteen, but the two men there in waiting for labor and success were not easily disheartened; the "blue days" passed, the furniture arrived, and the number of scholars increased to forty-five. Since the first term the school has steadily gained in numbers and in efficiency; the buildings are in process of erection, and the university promises to be henceforth a great and beneficent power in the state, raising the standard of qualifications for the office of teaching, sending forth annually a large number of skillful and devoted laborers, and kindling every where a deeper interest in popular education.

By his efforts as president of the State Teachers' Association, and as editor of the "*Illinois Teacher*," Mr. Hovey contributed his full proportion of influence to secure the founding of this noble university, and by his energy and skill as principal he is doing much to make it fulfill the end of its being. The sketch which has now been given of his life indicates his eminent fitness for the position which he occupies, proving as it does his great strength of purpose, his unwearied diligence, his devotion to the interests of sound learning, and his power to control the young and inspire them with his own enthusiasm.

## V. APHORISMS ON TEACHING HISTORY.

[Translated from Raumer's "*History of Pedagogy*," for this American Journal, of Education.]

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1. VIEWS on the proper mode of teaching history are exceedingly different, and even contradictory. Such oppositions in other departments of study are usually based upon the discrepancy between the old and new pedagogy; but in the case of history it is not so.

2. First, to define intelligibly the object of our discussion. Shall we teach history, in the widest acceptance of the term—what is called universal history, which treats of all periods and all nations?

Although history, under this name, is taught in most gymnasia, yet neither the instruction in it, nor any one manual of it, corresponds to this idea of it. For what text-book "includes all nations?" Are not the Americans, for instance, usually omitted? as well as most of the African nations, except the Egyptians, Carthaginians, and other nations of northern Africa, who were connected with the Romans? And how large a portion of Asia is altogether neglected!

3. This neglect is for two reasons. One is, that we know either very little or nothing at all of the history of many nations. This is the case respecting those of America. The other is, that we prefer not to know any thing of the history of other nations; or, at least, do not wish the pupils in our schools to be occupied with it. Thus, for example, the Indians and Chinese are scarcely mentioned, though there is no lack of historical authorities on these subjects.

4. But there is also a great distinction between the modes of treating such histories of nations as are included in our histories of the world; inasmuch as in some of them we go into much greater detail than in others. We give less fully the history of the Persians than that of the Greeks; of the Russians than of the English.

5. Universal history, in like manner, as we teach it, does not include all people of all times and countries, and it does not give the same degree of attention to those nations of whom it does treat. By what standard does it proceed in this? Is it according to dignity, so that the more enlightened nations are made more prominent, and those less so left in the background? This is by no means the only rule; for, if it were, the Hindoos, for instance, would fill an im-



portant place in it. For how high a position do they occupy in eloquence, poetry, mathematics, &c.

Why do we give so much attention to the Egyptians, for example, when the Hindoos were certainly not their inferiors?

6. The answer is this. In like manner as individual men take particular interest in the biography of their own ancestors, and of such persons as have exercised much influence upon their own training, employment, or labors, so does each nation take most interest in its own history first, and next in that of those nations which are related to it in language, manners, &c., or which have directly or indirectly exercised a great influence upon it.

7. In the history of what nations should we, as Germans, feel most interest?

First: in that of ourselves. History of our own country, ancient and modern.

Second: in that of the Jews, since salvation is of them, down to the time of Christ, and including the destruction of Jerusalem.

Third: in that of the Romans; to whose *Orbis* our nation formerly belonged, and whose influence is perceptible among us even now. Related studies are Latin, the *Corpus Juris*, history of the Catholic church, &c.

Fourth: in that of the Greeks; whom we recognize as directly or indirectly our instructors.

Fifth: in that of such ancient nations as were in more or less close relations with the Jews, Romans, and Greeks; as the Assyrians, Chaldeans, Persians, Egyptians, Phœnicians, Carthaginians, Arabs, &c. These are, however, not so nearly connected with us as are the Jews, Romans, and Greeks, and they are more distantly related to our character and history.

The history of most of these nations is previous to the time of Christ, and belongs to the ancient period.

The Hindoos and the Chinese have not, within the historical period, been either directly related to the Germans, nor in such close connections with any nation in proximity to us as would enable their influence to reach us through them; and thus, with us, they stand in the background.

Since the time of Christ, Europe forms one Christian whole. Still, the Slavic races are further from us than the Romance ones, or the German ones; not to mention still slighter shades of difference, as, for instance, the fact that, among the Romance nations, the Italians are sensibly more nearly related to us than the Spaniards, and they than the Portuguese.

8. These remarks may furnish a standard by which to adjust the

extent of the attention devoted to each nation in text-books and school lessons; which is the point to which I am to speak. The case is entirely different, when a historical investigator devotes his attention to some obscure national history, without any reference to its relations with his own country, and which is very properly omitted from school studies. For such a student the human race is one; and even those races, whose relationship to and connection with our own is hidden in the darkness of times long forgotten, come gradually astonishingly near to us. How unmistakably, for instance, does a comparison of Sanscrit with German point to a primeval unity of the German and Hindoo races.

9. After the object of historical instruction is determined—that is, what is to be taught—the question arises, How are we to set about instructing; what is to be our method? In this respect, also, is there the greatest variety of opinions among instructors.

In the first place, there is an opposition similar to that in the case of geography. The beginning may be made, that is, either with general or with particular subjects. In geography, for example, one begins with discussing and describing the whole surface of the earth; while another commences, as old Merian did, with describing single towns.

10. Thus, in history, a beginning may be made either with a sketch, of the most generalized kind, of the history of the world—we have seen what is to be understood by the history of the world—or with biographies of individual men.

Of these two extremes the first naturally induces the second. "What can boys do," ask some, with general history? They will learn names and dates of years, and nothing more. Where the scope of the subject is so great, the matters which are of most importance to youth, such as vivid portraits of individuals, great men, instructive occurrences, &c., can not be properly considered. We would, therefore, begin with the biographies of Alexander, Cæsar, Mohammed, &c.; and this method must certainly be more agreeable to the young than the general historical method.

To this the opponents of this method would reply:—"Did these heroes, whom you would describe, live as isolated appearances, in an age otherwise empty? Did not each of them belong to his nation? Can I comprehend Cæsar without knowing the Romans; or the Romans, without knowing the Greeks and Carthaginians? Shall I not therefore be obliged, in order to delineate my hero, to describe his nation; and indeed all the nations which were in close connection with it? And does not this, of course, bring us to the method of general history?"

I do not subscribe to either of these conflicting views: each of

the parties seems to me, however, to be right in its objections to the other.

11. In late years there have been those who have maintained that we ought to begin the instruction in history with that of the native country; since that is nearer to us than Greece, Rome, &c. This view seems at first so simple and natural that it attracts us; but, upon closer consideration, one who is moderately acquainted with the history of Germany would be slow to adopt it. Are not the most important periods of German history—such, for instance, as the mediæval contest between the popes and the emperors—of a character far too difficult for the intellects of boys? Do they not require, for even a moderate understanding of them, a comprehension of the science of church and state, and of their mutual relations? And other equally significant questions might be asked; as, for example, whether a boy of from ten to twelve years old is capable of understanding the movements of the Reformation?

12. I now turn from methods which I do not approve to the consideration of those which I consider correct.

The first beginning of historical instruction is, in part, coincident with religious instruction. Christ stands upon the bounds which separate ancient and modern history. Ancient history is related to him, lives in him; and he is the creator of the modern period, and will remain with us until the end of the world.

In this department we first become acquainted with the evangelists—the history of Christ—and thus acquire the capacity to learn aright, both in ancient history and modern, whither the former tended and whither the latter is tending.

Historical instruction proper I would commence with the Old Testament. My reasons are these:—\*

1. Because the Old Testament history does not begin arbitrarily at any particular period, but at the beginning—the Creation.

2. Because this history is at once so simple and so vividly graphic. The persons and scenes of the Old Testament impress themselves involuntarily upon the mind. Its descriptions and narratives excite the children's imaginations to the forming of mental pictures, which remain in their minds, instead of merely passing through their memories, like mere names which have no actual existence. The Bible does eminently well what is required by the adherents of the biographical method of studying history.

3. Because the history of the Jews is a remarkably individualized one. It is the history of the people of God, chosen out and set apart

\* It should be understood that, for the purpose of historical instruction, many parts of the Old Testament should be omitted, and left to be read at a maturer age.

from the heathen; and for this very reason it is more intelligible when separate from others—not incessantly referring to foreign nations, whose existence connects itself with its own, and thus requires some full knowledge of their history. This makes the mastery of it much more simple, and enables the attention to be directed, without divergence or confusion, to this one nation exclusively. This limitation of the subject is excellently adapted to the dimensions of the minds of school-children.

4. Because the history of the Jews is a theocratical one, in which the finger of God is visibly seen. God, to whom all his works are known from the beginning, the educator of the human race, often withdraws himself from sight in the history of other nations, as if he had given men over to themselves; and it is a characteristic of profound historical research and knowledge to look beyond the accidents of the time, and to recognize the justice of God ruling over the nations and over individuals. In the history of the Jews, on the contrary, the divine punishment follows sin, as the thunder does the lightning; while the blessings of the just—as in the case of David—fall visibly upon him and his posterity.

5. Because the Old Testament history not only reveals the true God in his justice, but also in his infinite mercy. While it relates the origin of sin, and with sacred impartiality reveals the sins even of men of God, yet it is a book of encouragement and of hope; because it every where points toward the coming Saviour.

Such a history furnishes the first point of view from which correctly to understand and estimate the history of other nations. It is the foundation—and even more, it is the living heart—of the history of the world. As Palestine was a land most isolated in situation, yet admirably adapted to become related to the Roman world, so the ancient Jewish history is a most individualized and isolated one, and yet contains within itself a living energy which enables it, at the epoch of Christ, to open out into a most comprehensive history of the world.

With the Old Testament are connected the histories of the Assyrians, Chaldeans, Medes, Persians, and Egyptians; for which, indeed, the Bible itself is one of the authorities. Daniel refers to Alexander the Great. The Apocrypha, with Josephus, fills up the gap between the return from exile and the time of Christ. And at this last point the history of the Greeks and Romans joins on to that of the Jews.

13. We now come to a point of divergence. Hitherto, history, entirely biblical, has been the same for all Christian children; but here there arise distinctions, depending on condition and sex.

Boys will either study for a learned profession, or not. The former

study Greek and Latin, and can and must be introduced to the sources of Greek and Roman history. These sources include not merely the historians, but all the classic authors; for they all characterize their nations.

Now, should the boys be carried through a detailed history of both the classic nations, omitting the classic authors, before they read the latter? By no means; but still they should study a brief outline of it, with reference to the future reading of the classics. This outline will serve to fix correctly their ideas in chronology, just as their previous geographical studies have done in space. But it is not intended that this portion of study should be completed during their attendance at the gymnasium.

The case is different with boys of the higher ranks, who will not study a profession, and with girls. These may study a more detailed history; since nothing can be left for a subsequent reading of the classics. But this history must still be written throughout in an easy and popular style, and must not demand any previously acquired learning in order to its comprehension. Both Greek and Roman history must be presented in their relations to the kingdom of God; and the opposite characters of heathenism and Christianity must be presented. A description of the Roman Empire at the time of Christ is of special importance.

14. We now come to modern history. Roman history forms the transition to it, belonging as it does to both ancient and modern times. Boys preparing for the university may study, for this, Tacitus; but not the writers on the Augustan period. At about the epoch of the Antonines begins a period, the original authorities on which are scarcely studied except by professional historians. How few are there who read Cassiodorus, Jornandes, the Byzantine historians, the Latin writers of the middle ages; how many, indeed, even understand the older and middle-age High German?

At this point, it will be said, come in the eminent modern historians.

I can not refer, for this purpose, to classic writers generally, as I did for ancient history. One reason for this is, that only a few among the modern writers are really able; and among these there are few, again, whose treatment of history is not quite beyond the capacity of youth. Such a one is Spittler, for example. A second reason is, that to read Herodotus and Sallust is an actual intellectual labor for the pupil; he is obliged to pay earnest attention to the course of the history to master his tasks. And it is only too commonly, on the other hand, that young persons read the German historians merely for amusement, very much as they seek

after romances, to pass away the time in indulging their imaginations.

The teacher, I say, should not refer to the modern historians as he does to the ancient ones; especially, not as if they were soon to be read in school. By this I do not mean that he should proceed as if they did not exist; he should give his pupils a sketch of modern history, as of ancient, with reference to the fact that they will sooner or later read the good German historians, and perhaps the English ones. This sketch should be fullest of our own history; and more or less so of the other European nations, according as they are nearer to or further from us, or have more or less interest for us.

15. The question will arise, How many facts, &c., should the pupil fix in his memory? I reply, first, Rather too few than too many. That is a very great error, into which teachers of history fall, of often laying upon their pupils burthens which they themselves could not endure. Instead of selecting remarkable men and occurrences, and giving the proper dates of them to be memorized, they torment the boys with a mass of minutiae "for future oblivion;" that is, which they will forget as soon as they leave the class. There is no better means than this for inspiring them with a most thorough disgust for history, and one from which they can afterward scarcely free themselves.

The opposite extreme from this cramming process must, however, be avoided—of being too kind to the boys, so as to make them inefficient and afraid of labor. There are teachers so tender of the boys that they are reluctant to make them commit to memory the multiplication table. Every one knows how easily the memory of the young receives and retains facts, names, and dates, unless, indeed, an unwise teacher has broken it down by unreasonable burdens or entire neglect. It is well known that, when this has happened, the sufferer, when grown up, can only with difficulty, or not at all, repair the damage thus inflicted. But we are in after years thankful to our instructors in history, if we retain from their lessons as much even as the succession of the German emperors and the length of their reigns; and are thus enabled so to measure our own historical studies as that we can proceed in them without having our mental processes interrupted by defects of recollection.

16. The more thought is bestowed upon the plan for historical instruction to be pursued in our schools, the more difficult will it appear to lay down any universal rules on the subject. And these rules should, in any event, be only of a most generalized character; and not such as to bind down the teacher to any course of details. The reason of this chief rule is, that historical instruction is eminently dependent upon the personal gifts of the teacher. Shall he, for in-



stance, make much or little use of a free, narrative method! Should he not rather select extracts from historians and read them! I reply, This depends upon whether the teacher has the talent of narrating—a very uncommon one. It supposes not only a man of historical knowledge, but the gift of narrating historical facts simply, lucidly, orderly, and fluently, without error or hesitation. And it also requires, above all, a clear and sensible mind, heartily despising that mere declamation for effect, which is only too often made a cloak for ignorance, and is well adapted to destroy at once the scholar's taste and his sense of truth.

If the teacher is skillful and conscientious, as few rules as possible should be prescribed to him, and it would be better to have none at all; for no one can properly claim to understand teaching better than the teacher himself, whose mind has been expressly trained and practiced in his calling as its proper field of labor. Such prescribed rules must, at best, be able to restrain mediocre and bad instructors from ruining their scholars entirely. If unskillfully made, they constrain and confine the best teachers.

17. We have very many text-books of history, from the briefest compends up to voluminous and detailed works.

The former are intended for school use; and furnish very brief, condensed sketches, which are to be filled out and made vivid by the teacher's oral instructions. The pupil, during his study, obtains from them the subjects which are to come up during instruction; and the manual serves, by means of recitation from it, as an aid to the memory, as the short entries in a memorandum-book do. These compends may be even without any style at all—in a tabular form.

Other compends pretend to possess a good and readable style, and that no additional oral matter from the teacher is necessary. They are calculated to assist persons studying without teachers, without any other aid. They claim, notwithstanding, to be compends; although, as a general rule, they embarrass the teacher who uses them, because they deprive him of the most important and interesting portions of his materials. The pupil who prepares himself from a compend of this nature is sated with the subject when he comes to the class, and the teacher's words have no interest for him. Indeed, the teacher can, in this case, at most, do no more than to give instruction, by conversation and examination upon prescribed tasks, out of the book, prepared by the pupil for each lesson.

Voluminous historical manuals are intended only for those who study without a teacher. They can not fill the place of compends in instruction.

18. There is as great a difference between historical compends for

men and those for boys as between a catechism and a system of dogmatic theology, or between a grammar for beginners and one for philologists. This difference consists not so much in the greater or smaller number of historical facts as in the selection of them; in its choice, for instance, of the more abstract civic and ecclesiastical relations, or of more pictorial representations of great men and occurrences. It depends upon the spirit in which the book deals with history.

A childlike and delicate tact may be exercised in the selection from the text-book of what is proper and comprehensible for beginners. The youngest pupils will prefer historical matter which is as near as possible in character to stories; they only gradually grow into a feeling for historical truth. Observe, for instance, what are the actual points of interest to children. They take pleasure in hearing of Marathon and Salamis, and of the campaigns of Alexander; but none in the contests between the patricians and plebeians of Rome, of the agrarian law, &c. They are not usually as much interested in Cæsar as in Alexander.\* In brief, they are pleased with whatever stimulates their imagination by beauty, greatness, nobility, chivalric bravery, and adventurousness; but not with any thing that is cold or purely intellectual, such as the subject of civic relations and civil controversies. Such matters are repulsive to them.

There are compendiums, as well as teachers, who do not use sufficient care in observing what children like and can understand. We are now speaking, let it be remembered, of school-children, not of students, who have reached the verge of adult age and of civic life. These latter very properly require a presentation of the subject which does not merely seek to please by an exciting narrative, but which shall tend to direct and fix their minds in a knowledge of the true and serious nature of the approaching labors of their life as citizens, and for the great and solemn problems of human life generally.

We have thus discussed the beginning of the study of history. What, now, is its ultimate object—the purpose of all the labor bestowed upon it? What are the highest aims which we have in view in the lower as well as the higher stages of progress in the study? Let us prepare to answer by deciding a narrower preliminary question:—What do we desire to learn from the biography of an individual man? I reply, The problems of his life, and their solution. The history of the world is the biography of the human species—under which nations are the varieties. What are the gifts and the problems of humanity—of single nations? “There are many gifts,

\* Of the Romans, children—like Livy—make a special favorite of the elder Scipio.

but one spirit." Whence do we come—whither do we go—we, all men, taken as one representative man?

When an individual dies, we ask, What has become of him? And millions and millions have, in like manner, died during the course of time, and what has become of them? History plays over graves; and future generations, like past ones, are all drawing toward the great necropolis. When will the dominion of death be ended? Does the end of Time—the beginning of Eternity—now approach, when they shall no longer be born or die?

The infancy of man is lost in the darkness of the past, and its future fate in that of the future. No man has investigated and understood death; and none has escaped over the limits of that unknown land from which no wanderer returns.

At this point Revelation appears, displays to us a part of the future, and opens to us the knowledge of our race—so highly gifted, so fallen away from God, and saved and forgiven through Christ. It encourages us as to the departed, and prophesies the resurrection of the dead and the Last Judgment. At this tribunal, love will be the rule of procedure; to him who hath loved much, much shall be forgiven.

What pride lost, the lowliness of Christ has recovered. With the crucifixion and resurrection of Christ began a new creation, the regeneration of a fallen and saved world, the establishment of the kingdom of God, in which all contentions shall cease. It is the kingdom of a love that shall never cease, because it is stronger than death.

## VI. GEOGRAPHY.

[Translated from Raumer's "*History of Pedagogy*," for the American Journal of Education.]

PESTALOZZI mentions a schoolmaster who instructed his scholars in geography so skillfully that they were well acquainted with the road to the East Indies, but very ill with the roads and paths about their own village. And Rousseau says: "I assert that no child of ten years old, who has had two years' instruction in geography, can, by using the rules which have been given to him, find his way from Paris to Saint Denis; or can even find his way about the curved paths in his own father's garden, without making a mistake. And these are the learned men who know, to a hair, whereabouts are Pekin, Ispahan, Mexico, and all the countries of the earth."\* The reason of this practical incapacity Rousseau found to be that the children were taught maps only; the names of cities, countries, and rivers, which existed, for the scholars, only on the maps where they were shown to them. He advised, on the contrary, to commence instruction in geography by furnishing the boys with correct knowledge of the neighborhood of their own place of abode, and making them draw maps of it.

These views of Rousseau seemed the more reasonable to me, because I had spent years in geognostic researches among the mountains, and knew by experience the heaven-wide difference between a knowledge of a map and of a country. I composed a dialogue upon teaching geography, in which I set forth Rousseau's views in detail. The speakers were Otto and George. "Before I made my first tour to the Silesian mountains," says George, "I read over all that I could find respecting them in books of travels. The result of this reading was, that I formed in my mind so distinct an idea of those mountains that I could have painted them from these descriptions. I came among the mountains themselves; and, to my astonishment, the mountains of my imagination had no resemblance whatever to the real ones." And he says, again, "Permit me to add something further, in order to make my meaning clear. If any one inquires of you about the features of your room, or your house, you describe them to him according to the representation of them which is before your mind; not according to such a representation before your

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\* Second book of "*Emile*."

mind of ground-plans or elevations. If you are asked about a house in your neighborhood, you answer in like manner, not according to any representation before your mind of a plan of the city, but according to a representation—such as your faculties have made it—of the city itself; you say through what streets the questioner must go to reach the houses, and you point it out to him by shape, color, and peculiarities. And you can in the same way describe localities in the neighborhood of the city—unless you are an inveterate stayer at home. But how will it be if any one inquires of you for directions to a place say twenty-five miles distant? Will the picture of the road in that case still be clear before your mind, as it runs in through the fields and the woods, so that you can tell through what villages and over what waters it passes, how you must leave this mountain on the right hand and that castle on the left? Or will not your imagination in this case be at fault; will you not have forgotten many portions of the road, and have but an obscure recollection of others? May you not even have quite forgotten the whole road? And when Otto answers, "This is the case for which maps are intended," George replies, "Then you must have within you the representation of the maps instead of that of the localities, and give your directions wholly from that, or else your recollection of the map will mingle in a confusing manner with that of the ground." And, at last, when the question is put, "How does the road run from your residence in Germany to Canton, for instance, or Irkutsk?" it appears that all representations in the mind of the extensive regions over which you must travel will quite disappear, and the representation of the map will entirely occupy their place.

Otto now calls attention to the necessarily limited extent of the knowledge of most persons respecting countries. No Titan, he says, is born, who can give information about the whole earth as fully as we can about our own homes and places of abode—who carries in his mind representations of all lands and nations. We must therefore make use of indirect knowledge, of some kind, in the place of direct. Whether this indirect knowledge shall begin with the district in which the learner lives, or the kingdom—whether with a smaller or larger area—is of but small importance.

*George.* What you say is like what I once heard alledged against the intuitional method in arithmetic, which Pestalozzi urged so earnestly. What is the use of it? asked its opponents; in the case of large numbers, all actual pictures of them must disappear from the mind. Who can imagine even a hundred apples? Away, therefore, with all intuitional arithmetic.

*Otto.* I agree with them.

*George.* I do not. I think the power of intuition should be developed as far as to the number ten, which can be counted on the fingers. So far the smallest capacities might attain. Then the tens, and afterward the hundreds and thousands, might be treated as units, and thus, by means of the wonderful decimal system, the most monstrous numbers can be dealt with. Without this intuitional knowledge, from one to ten, the children are liable to run into a mere course of juggling by means of the decimal system, without gaining a clear and intelligent knowledge of arithmetic.

*Otto.* And what is your application of all this to geography?

*George.* The numbers from one to ten are the boy's place of abode, the man's country; they are the Archimedean point in geography. He who understands them thoroughly may acquaint himself with other countries.

George now proceeds to explain how, according to Rousseau's system, the boys may be carried onward from the knowledge of, and ability to map out, the neighborhood—their home and its vicinity—to an acquaintance with foreign countries and the ability to describe them. During youth and manhood, he says, they may take journeys, especially within their German fatherland, and to countries most interesting to Germans, and may thus enlarge their direct knowledge of countries. But, he adds, how great soever their knowledge is, it can never include the whole earth; and this fact forces us to use substitutes—to supply the defect by means of a symbolical knowledge of the earth. And he explains this symbolical knowledge as follows:—

The sphere of the individual man is limited in space and in time; he can not exceed the measure of his bodily growth, nor add a single year to his life, nor do wings bear him over the earth. Yet his mind belongs not merely to the immediate present, but to a greater spiritual universe. Thus there is an incongruity between the wide aspirations of his mind and the limitations of his mortal body. The use of symbols is a mode of reconciling this incongruity.

There are two kinds of symbols; artificial and natural. The artificial symbol brings before the mind original ideas, by means of representations; while the natural sees the original idea in the parts of it. Permit me to give a brief illustration of these two kinds of symbols. You can represent Paris to yourself by plans of the city, panoramas, models, descriptions—by the most various kinds of representations, based upon an actual immediate observation of Paris. You see the city mirrored in another mind. These I call artificial symbols. But suppose you could remain for some time in some house in Paris, without leaving it. You would see and hear from your



—window the various noise and haste, the running, and the outcries of laborers and tradespeople, the mountebanks and marionnettes, cabs and water-carriers, national guards and chestnut-sellers, cobblers and fishwives, and thus, by your observation of a small part of the city, you would obtain a knowledge of it as a whole, by the method of natural symbols. *Ex ungue leonem.*

Now put the earth in the place of Paris. We have all manner of representations of it: globes, maps, reliefs, pictures, and engravings of localities, cities, and buildings, descriptions of all countries, and general descriptions, compiled from the descriptions of individual immediate observers. These representations are, some of them, of late invention, such as reliefs and panoramas; and in part they have been so improved, within the last century or two, that they must now be treated as entirely new subjects—as is the case with maps.

Thus there has arisen, during these last centuries, a most earnest and thoughtful endeavor to create, by means of these various representations, a new earth on the earth—the greatest of all artistic efforts. To this end point the untiring zeal shown in collecting beasts, animals, and minerals from all parts of the world; and the investigations of all the nations, their languages and manners. Who can tell how far this unwearied zeal will go? As man's susceptibility to impressions increases by early travels within his own country, and at the same time his own powers of representing, and his capacity for comprehending the representations of others, which again are on their part becoming more and more perfect, who can tell to what a degree of broad, general comprehension of the whole earth one can attain who is acquainted with his own country, by means of intercourse and artificial symbols?

In describing natural symbols, George says:—

As at Paris you would become acquainted with Paris itself by looking out of your window, and not with a representation of it—learning the whole from a part—so should you gain from your own country a knowledge of the whole earth; this portion of the earth should be to you a symbol of the whole of it. Do not the sun, moon, and stars shine upon your own country as they do upon all the rest of the world? Does not the magnetic needle, that living representative of the earth's magnetic axis, point to the north before your eyes? Are not the mountains of your own country constructed almost exactly as are those of all other parts of the world; and are not her plants and animals the same, or of the same species, which are found throughout a great part of the world? Open your eyes, and your own home will be seen to be as a new paradise, having gathered together in it all the creatures of the earth. Learn, however,

first of all, to know and love your own people; and this will lead you to the comprehension of humanity as it exists throughout the whole earth. Thus direct knowledge of your own country is an object in itself, and affords the means of understanding representative descriptions of the earth—the geography of artificial symbols—while its thorough development also forms a basis for the geography of natural symbols, which shows, in our own country, the features which characterize the whole earth.

Four years after writing this dialogue, I went to Nuremberg, and there taught geography for the first time. The question came up, whether my views in this department of instruction, based upon Rousseau's, would stand the test of practice? And I must confess that they did not.

Taking walks—an aimless wandering about the neighborhood—was very pleasant to the boys. But when a definite purpose was contemplated in these walks—when the boys were made to gain correct knowledge in them, consciously and of purpose, and were again made to use all their knowledge in drawing a map, all their enjoyment of the walk was at once destroyed. Instead of being a relaxation and a relief from the school-lessons, they became merely peripatetic lessons themselves. This dislike of theirs proved to me clearly that my theory of geographical instruction was wrong; and I gave it up.

I afterward, however, attained my purpose of making my pupils use a knowledge of their abode and its vicinity as an introduction to the understanding of maps, and even of the globe, in a manner apparently similar to that which had failed, but really very different. During the geographical instruction which I gave in Erlangen, I began, for instance, with a large plan of the city. The pupils examined this with the most lively interest, and picked out all the streets, their own homes and those of their acquaintance, and the churches and other public buildings. They could not satisfy themselves with looking, and their researches had no end.

After this I gave them a large and very fully detailed plan. On this the city itself was, of course, smaller than on the first plan, but was still clearly laid down. The pupils now first carefully compared the two representations of the city, and observed their resemblance, and how they differed only in the difference of their scale.

They then looked out upon this map all the neighboring localities with which they had become familiar during their walks, and followed the roads from the city to one place and another, vying with each other in the exercise. Those who were less accurate in their

knowledge afterward of themselves directed their excursions to points not known by them, and others searched out new routes. Without my having at any time imposed this acquisition of correct knowledge upon them as a task, they came at last to have a good knowledge both of the localities themselves and of the map of them. The map did not become, what Rousseau finds so much fault with, "a mere set of marks, without any equivalent conception in the mind of the thing represented."

After this map of the neighborhood of Erlangen, I placed before them one of Middle Franconia. The area of the last map occupied but a small space on this. But, on the other hand, it included a much larger surface; and the pupils could pick out upon it Nuremberg, Fürth, Forchheim, Bamberg, and other places which they knew, and also the villages, &c., which they had observed on the roads to these larger places.

I need not add the details of the course by which I went on to exhibit Middle Franconia as but a small part of Germany, that as one part of Europe, and Europe as one part of the whole earth.

Even while the pupils were occupied with the neighborhood of Erlangen, I at the same time began to instruct them, in the simplest manner, about the cardinal points, the rising and setting of the sun at different times of the year, and its place at noon. Those city streets which ran north and south, and over whose southern ends the sun thus stood at noon in summer, were of great assistance in this course of instruction.

I am here only discussing the first beginning of geographical instruction. If now it be inquired, Why is this method adapted to beginners, and not the systematic examination of localities and map-drawing along with it? the explanation is to be found, as I have already shown, in the dislike of children to what is purposeful and methodical. In the school, they are satisfied to have every thing go on in the fixed routine; but they think it unendurable and even unjust to apply school discipline to their whole lives, and even to their walks. And, moreover, it is natural for beginners to prefer good and well-drawn maps to the imperfect and ill-looking ones which they scratch off with so much pains and weariness. And, again, when they find out, as by my method, that they have been acquiring knowledge in taking walks, they are as delighted as was M. Jourdain in the "*Bourgeois Gentilhomme*," when he found out that he had been talking prose all his life without knowing it.

After having made a beginning in this way, I was at a loss to know what geographical text-book to use in my subsequent instruc-

tion. In most of the older manuals I failed to find a proper arrangement, either in general or in the description of particulars; and many of them were also faulty in selection of materials, and in the proper proportions of it.

The lack of proper general arrangement appeared most prominently in the fact that the authors had not sufficiently distinguished between what is proper for a universal geography and what belonged to a description of particular parts of the earth and countries.\*

To illustrate the extreme want of good order in describing subordinate portions of the earth, I give the following enumeration of German mountains and lakes, which I request the reader to follow on a map: "The principal mountains are, the Harz, (Brocken, 3,495 feet high;) Schwarzwald, (Feldberg, 4,610 ft. ;) the rocky Alps, the Rhaetian and Noric Alps, (Orteles or Ortles, 14,814 $\frac{1}{2}$  ft.; Grossglockner, 11,982 ft.; Hochhorn, 10,667 ft.; Platey-Kugel, 9,748 ft.; Watzmann, 9,150 ft. ;) the Carnic and Julian Alps, (Terlgoul, 10,845 ft. ;) the Fichtelgebirge, the Schneeberge, 3,468 ft.; the Kahlenberg, the Birnbaumerwald, the Sudetic Alps, and Riesengebirge, (Riesenkoppe, 4,950 ft. ;) the Moravian mountains, (Spiegglitzer Schneeberg, 4,280 ft. ;) part of the Carpathians, connected by low hights with the Moravian and Sudetic chains, the Thuringian mountains, the Erzgebirge, the Spessart, the Rhone mountains, the Böhmerwald, (Rachel, 3,904 ft.; Arber, 4,500 ft. ;) the Wesergebirge, Westerwald, Odenwald, Ardennes, Vosges, Hundsrück, &c. Lakes: Lake of Constance, (seven miles long, three miles broad, and more than three hundred fathoms deep;) Chiemsee, Lake of Cirknitz, the salt and sweet lake of Mansfeld, the lakes of Mecklenburg, Brandenburg, and Pomerania, the Dümmersee, the Traunstätter and Hallstätter in archducal Austria, the Steinhuder Lake," &c.

Nor is this example of confused and disorderly arrangement from the earliest best geography, but from the favorite manual of Stein, which has been translated even into Polish, and from the fourteenth edition of it.

But many geographical manuals are also deficient in proper selection and proportion of materials. They contain unimportant matter, and omit the most important. Murray, for instance, in his description of Cologne, mentions Farina's *eau de Cologne*, but not the cathedral. They sometimes contain statements of results in natural science which are quite problematical or even altogether inadmissible—such as youth should not be informed about. They should receive, as far as possible, only what is entirely true.

\* I have expressed myself more fully on this point in my review of Murray's Geography, reprinted in my "Crusades," (*Kreuzzügen*.) Subsequent examples will illustrate the point.

It is also often the case that geographers quite fail in an accurate understanding of their subject, and of the limits between it and the provinces of other sciences; for the idea of geography is entirely different from what it was in the time of Busching. It is in our time as if all the arts and sciences had appointed a rendezvous with geography for a great family feast on occasion of the first discovery of their relationship. Here gather astronomers, physicists, botanists, zoologists, mineralogists, philologists, statisticians—who can enumerate them all!—bringing the fruits of labors too vast for description, to throw them all into one great common structure. They seek to gather together every thing which the wide earth offers, so that it may be seen and understood.

It is accordingly of great importance to observe a proper proportion among all these, and to select judiciously; so that the geography shall not come out a hydrology, zoology, nor mineralogy; so that in general no department shall exceed its proper limits. That many fail in this respect is shown, for instance, by V. Hoffmann's geographical writings. In his work "for all classes," entitled "*Germany and its Inhabitants*," (*Deutschland und seine Bewohner*), the description of the Rhine and its tributaries occupies sixty-three pages; and he mentions 481 streams in the valley of the Rhine, 337 in that of the Elbe, 215 in that of the Oder, 487 in the German part of that of the Danube. In his "*Europe and its Inhabitants: a Manual and Reading-book for all Classes*," (*Europa und seine Bewohner: ein Hand- und Lesebuch für alle Stände*), he gives a list of measured heights of land, and of uninteresting lengths and breadths, occupying no less than 191 pages. In the same work, intended "for all classes," he gives a hundred pages of Latin names of animals to be found in Germany; as, for instance, of 85 tape-worms, 54 snails—such as *Helix holosericea*, *H. Olivieri*, *leucozona*, &c. In this way school geographies are filled up with Latin names of plants and animals which the boys have never seen and probably may never see; and the author flatters himself that he puts forth an intelligent method of instruction and natural science, and good intuitional exercises.

I wrote, in 1831, a manual of general geography; in which I endeavored, as far as possible, to supply these deficiencies of my predecessors. Future writers will, in turn, supply my own.

At the same time, I published a "*Description of the Earth's Surface: an Introduction to Geography*," (*Beschreibung der Erdoberfläche: eine Vorstufe der Erdkunde*,\*) for beginners; and made use of it in giving instruction subsequent to that which I have already

\* This was extracted from the second part of the manual.

described. In this I begin with some very simple lessons in mathematical geography, especially respecting the sphericity of the earth, the ideas of axis, pole, equator, parallel, latitude, longitude, tropics, polar circles, and zones. Then I briefly discuss maps, and show how these either represent the whole earth or parts of it; and how the degrees are marked upon them. I have found it very useful here to compare some maps with a globe. I ask such questions as, for example, What country is that, which extends from the 9th to the 21st degree of longitude, and from the 36th almost to the 44th degree of latitude? Or, In what country do the meridian of  $40^{\circ}$  and the parallel of  $37^{\circ}$  north intersect? And the pupils can put similar questions to each other.

When I have proceeded from the city-plan of Erlangen as far as to the globe, and have connected with it the instruction above mentioned in mathematical geography, I take up my "*Description*," together with the well-known and excellent maps of Sydow. In this work of mine I endeavored, as far as possible, only to deal with general subjects, and to consider together only things properly related. What I mean by this is sufficiently indicated by its opposite, as shown in the list of German mountains from Stein. I will, however, add an illustration. The description of seas\* mentions five principal ones; and all others are given as dependents of these five. I consider in a similar manner the mountains, which are usually treated as if entirely isolated, and having no connection with each other. Such, for instance, is the case with the mountains surrounding the Bohemian Elbe valley; and the chain of mountains which, under various names, runs from Calabria to the Peloponnesus, and sends out a branch from Macedonia to the Black Sea.

This principle, however, appears most clearly in the case of the rivers. Under the old arrangement, when the political divisions of the earth's surface were also used in classifying the descriptions of mountains, rivers, &c., the Rhine, for example, had to be mentioned in the descriptions of no less than twenty-two countries and small states; and the student was left to put together for himself, as well as he could, a single picture of the river, out of these twenty-two scattered notices. And, again, if we are to consider as one, and in one description, not merely the whole Rhine, from its sources to the North Sea, but also all its tributaries—the Neckar, Main, and Moselle, and the smaller streams again which run into these, as the Kocher, Jaxt, Regnitz, &c., we should, in this case, mention the extent of the domains of kings and princes, but only the great domain of old King

\* Not including inland lakes.



Rhine himself.\* My description names the most important towns on each bank of each river: there are comparatively few important places which do not stand on a river.

This book is as brief as it could be made without making it unintelligible; with the intention of not depriving teachers who should use it of the most attractive portions of what they might themselves add to its information, such as fuller details in the character of rivers, mountains, &c.

The book, so far as it is to serve the purpose of instruction, is a description of maps; and it was necessary that these should agree with it. But, as it appeared, this was not the case, as the maps usually employed in the schools adhered to political divisions, while my "*Description*" neglected these and proceeded chiefly by mountains and rivers. It was very inconvenient, for instance, to follow out the Alps on the separate maps of Italy, Switzerland, Germany, &c., and the more so as these maps were mostly drawn to different scales. This difficulty is avoided by Sydow's maps. When the pupil has obtained, by means of these, a general view of the waters, mountains, and levels of the whole earth, he may then, for the first time, begin to use maps with political divisions. With the aid of this they may first give the boundaries of some particular country;† and then mention which of the mountains, rivers, &c., which they have been studying about, belong in whole or in part to that country. Thus, to France belong the whole of the Cevennes, the northern side of the Pyrennees, and the western of the Ardennes; of rivera, the Seine, Loire, &c., entirely, but the Rhone, Moselle, Maas, &c., only in part. Of the French cities which are important enough to be taken notice of by a beginner, most have already been mentioned in the previous study of the rivers; as Paris, Rouen, Bordeaux, Lyons, in following the course of the Seine, Garonne, and Rhone.‡

Oceans, mountains, and rivers are elements of geography which go back to a period quite beyond human history. Cities are the most ancient monuments of men. Abraham saw Damascus, and lived near Hebron; Jerusalem existed a hundred years before David; Rome is in the third thousand of its years. Whatever revolutions happen, in the course of time, to nations—their abodes, and boundaries, and dominions—cities outlive almost all changes; only a comparatively small number of large ones—such as Babylon, Persepolis, Palmyra,

\* Schenkendorf calls the Rhine

"An ancient monarch, nobly born."

† They should also give its length and breadth in degrees, using at the same time the globe, which has been used, as I mentioned, in the first beginning of mathematical geography.

‡ The few other important cities, such as Marseilles, Toulon, &c., may be added at this time.



and Carthage—being quite given over to desolation. Our own country exemplifies, within a smaller space and time, the same relation of cities to history. Mentz—first Roman, then the seat of archbishops and electors, then under the French dominion, and now Bavarian; Treves and Cologne—earlier Roman towns than Mentz, afterward the seats of archbishops and spiritual electors, and now Prussian; &c.

These ancient cities, then, which have survived the changes of time, and the seas, mountains, and rivers, which existed before man, are the permanent monuments with which it is of inestimable importance that pupils should become acquainted, for the sake of all their subsequent historical studies. They will thus readily understand the geography of the ancient historians. When they see the maps of ancient Gaul, Spain, &c., they will at once recognize the Arar as the Saone, the Matrona as the Marne, the Bætis as the Guadalquivir, &c.; Rotomagus as Rouen, Lugdunum as Lyons, Cæsarea Augusta as Saragossa; Abnoba Mons as the Black Forest; &c.

The geographical instruction thus far described is either immediately concerned with actual intuition by the senses or is closely connected with it. In this way the pupils have gained a knowledge of the seas, mountains, plains, rivers, and lakes, and the most important countries, and their boundaries, mountains, rivers, and cities. It is now time to give them a brief and clear description of the various races of men, languages, religions, and forms of government.

After all this, there remains but little to say of the description of particular countries—that is, of what particularly characterizes each individual country and nation, and distinguishes it from others. Here is the first place where more detailed descriptions of the principal cities can properly be given; pictures of them being used where practicable. But nothing should be protracted too far.

In this manner, according to my view, should the foundation be laid for future geographical and historical studies. These, again, may be carried further and relieved, by the reading of good travels, newspapers, missionary reports, &c. The pupil will now find his own knowledge so confirmed that he can proceed with no further aid, if he has good maps. He will also find himself sufficiently at home in any part of the earth to understand its ancient geography.

But all this fixation and extension of geographical knowledge is chiefly gained by means of books and maps. It is only in the first commencement of it that we make use of any immediate knowledge of a very small part of the earth's surface—namely, of the pupil's place of abode, and the vicinity of it.

It may be asked whether then I have wholly given up my earlier views, above described, on the method of instructing in geography? By no means. I only convinced myself, as I have shown, that the practice of draughting the neighborhood of home, with which that method begins, was not proper for beginners. Older scholars, who have gained a knowledge of drawing, may, however, practice it with advantage. But this prosaic method, as I may call it, of observing and delineating, should always have a poetic side; it should be made useful in instructing the pupil to draw landscape from nature, and especially to gain facility in sketching.\* If travels in Germany and in such other countries as are most beloved by and interesting to us Germans are the best preparatory school for understanding all the countries and people of the earth, the young must be made ready for these travels by the acquisition of such knowledge and accomplishments as will be of most service in them. But landscape drawing and architectural drawing occupy an important place among these.†

An adult person, desiring to know what further knowledge and accomplishments are useful to those who travel, would ascertain to the best advantage from reading the travels of distinguished writers, like Goethe, Humboldt, &c. The acquirements of these men are shown by what they accomplished.

Here I pause. Having thus endeavored to trace the course of geographical study from its very first rudiments, I refer, for the ultimate aims of geographical study, to what I have extracted from my dialogue on geography, already given.

\* I have given my views more at large on the relation between landscape painting and map drawing in the first part of my *Miscellaneous Writings*, p. 29.

† Unfortunately I am no draughtsman. In order in some measure to supply this deficiency, I used, while among the Silesian mountains, to make out from elevated points a sort of panoramas, on which I entered, with the aid of a compass, the names of mountains, towns, &c., in their proper directions, putting the furthest further and the nearest nearer from my own position in the center of the paper. These panoramas frequently proved each other's correctness. If, for instance, I had laid down Mount B. south-east from Mount A., then, in drawing from Mount B., Mount A. would be north-west of it.

## VII. INSTRUCTION IN NATURAL SCIENCE.

[Translated from Raumer's "*History of Pedagogy*," for the American Journal of Education.]

### INTRODUCTION.

I PRESENT here materials both new and old. I printed some essays on instruction in natural science as early as 1819 and 1822, in the first and second volumes of my "*Miscellaneous Works*," (*Vermischten Schriften*;) and in 1823 I wrote a programme "*On Instruction in Natural Science in Schools*."

Although, during an uninterrupted course of teaching since 1823, I have made new experiments, and have had occasion here and there to seek out and to open new paths, yet my original views on the subject have not substantially changed.

Even during the period of my own studies, I felt a repugnance to the usual course of this instruction. From 1805 to 1808, I heard lectures on mineralogy in Freiberg, from my never-to-be-forgotten teacher, Werner. His school has scarcely its parallel; pupils came to Freiberg from all parts of Europe, and even from Asia and America. And from that school what men have proceeded—Alexander von Humboldt, Steffens, Novalis, Schubert, Weiss, Mohs, and how many more!\* Werner's oral delivery was a model of lucidity and order; and his descriptions of mineralogical species left nothing to be desired; But when he had described perhaps ten species, and had scarcely a quarter of an hour left, he would have the cases which contained these ten groups opened on the table before us. It was a very torture of Tantalus, to gaze with straining eyes at these, endeavoring in so short a time to obtain a distinct impression of the appearance of so many different species. To do this, indeed, was impossible, even for the most ardent and attentive learner; and they would have gained, not an actual knowledge of minerals, but only fragments of it, had Freiberg afforded no other means of acquiring it. But traders in minerals came there from the most distant countries, and of them the students, amongst whom some were usually quite rich, purchased. Every one had a larger or smaller collection of minerals; and they showed their treasures to each other, and talked about them, and

\* While I was in Freiberg I ate at a boarding-club, which consisted, besides us Germans, of a Swiss, a Frenchman, a Roman, a Spaniard, and three Russians, one from Nerchinsk, which is near the Chinese boundary-line.

studied them together. But this was not enough. After, therefore, I had attended the lectures twice, I engaged private lessons from Werner, merely for the sake of going through his excellent collection under his direction. When, in 1811, I was appointed professor of mineralogy at Breslau, I saw that, under the circumstances of that situation, I must pursue a different course from Werner's, and must proceed as much as possible by the way of intuition, and keep the oral part of my instruction in the background, in order that my pupils might gain some actual mineralogical knowledge. For Breslau offered none of the outside assistance which was accessible at Freiberg; the academical collection being the only one from which the students could gather any information.

I shall hereafter describe the method to which I resorted. Besides the students, I had other hearers also. I offered to the rector of the Breslau Gymnasium to instruct any of his scholars who might have a special taste for mineralogy, and had the pleasure of always having some gymnasiasts under my teaching during my eight years' stay there; and my experience in Göttingen was similar.

I was transferred, in 1819, from Breslau to Halle, where I taught on the same plan, and also gave the mining pupils practical lessons, in the neighborhood, in the mode of examining mountains. In 1823 I left Halle and went to Nuremberg. Here, as instructor in a private school, I had an opportunity of instructing boys of from ten to fourteen in mineralogy, and had the use of a good collection for the purpose. I also endeavored to make my pupils acquainted with the vegetable kingdom, by the method which I shall hereafter describe.

I received my present appointment to the professorship of natural history and mineralogy at the University of Erlangen in 1827. Here I taught mineralogy to the gymnasiasts in the same manner which I had previously made use of; but to the students in a somewhat different one. Instruction in general natural history was a somewhat novel employment for me. It was evident that in this department I could not, as in mineralogy, begin with the observation of nature herself. How could this be done, for instance, in mathematical and physical geography? It was a matter of course that, as things then were, oral instruction must be the principal resource, notwithstanding that very many points might be made as clear as possible to the senses by means of exhibiting natural objects, pictures, maps, models, &c.

So much I have said by way of preface, to give the reader a general view of the course which I pursued in learning and teaching natural history; and to make it properly clear that mineralogy was my chief object.

## I. DIFFICULTIES.

The teacher of natural science might well turn dizzy when he considers the vast compass of his subject, and the mental power and exertion which they demand.

Their extent is increasing daily. Where Hipparchus and Ptolemy saw 1,022 stars, Lalande and Bessel saw 50,000; where the Greeks and Romans knew 1,500 species of plants, Stendel's "*Nomenclator Botanicus*" for 1821 gave 39,684, and its second edition, in 1841, no less than 78,005, without reckoning the cryptogamia. Thus the number of botanical species has nearly doubled itself within twenty years. In zoölogy there has been a similar increase. The twelfth edition of Linnæus' "*System*" included about 6,000 animals, while Rudolf Wagner, in 1834, enumerated about 78,000. The greatest German mineralogist, Werner, who died thirty years ago, in 1837, would not now know the names of more than one-third of the species of minerals now recognized.

In physics and chemistry there has been a similar growth. This can not be so well expressed by numbers; but almost any one can recall many of their doctrines, of which nothing was known a hundred years since.

The teacher, in casting his eye over this broad ocean of knowledge, might well despair of being able to fix upon a beginning, a path to pursue, and an object to aim at, for his pupils. And this despair might well increase, on considering how far scientific training is carried in these various sciences, and what demands are made both upon pupil and teacher. In most branches of natural science—including the higher ones—mathematics holds the scepter; and to him who is not master of that study the gates of their paradise seem to be entirely closed.

## II. OBJECTIONS TO NATURAL SCIENCE IN THE GYMNASIUM ANSWERED.

But these difficulties in the nature of the study are not all. Still others, raised by the adversaries of natural science, arise against its pursuit in the gymnasium; and of these we shall now speak.

Unless, say these adversaries, you propose to claim, with Jacotot, that we ought to be able to teach what we do not understand, you must admit that instruction in natural science must be given up, for the reason that there are no teachers who understand it. We answer, It is not to be denied that heretofore the incapacity in this department of many teachers has been plain enough. Without any knowledge of minerals, plants, or animals, they all lectured to the boys out of Raff's or Funke's natural history, made them commit to memory the descriptions of animals, &c., and then questioned them on them. But men always generally escape from such errors as this.

Our hopes of obtaining competent teachers of this department are increasing, because attention has of late been earnestly devoted to the purpose, and because there have been established in the universities, for those who devote themselves to mathematics and natural science, seminaries, corresponding to the philological seminaries.\*

But, rejoins our opponents, even supposing that teachers of natural sciences have been trained thus, what good can they do as long as the gymnasia are destitute of the necessary means of instruction? Have you any expectation that, in times so troubled as the present, and when demands are made upon the income of the state from so many quarters, collections in natural history, physics, &c., will be given to our gymnasia? Let us be rejoiced if our universities are furnished with all these means of instruction.

Such objections as these are based upon the mistaken idea that all instruction in natural science is superficial unless it is carried to the greatest extent. For the apparatus of instruction must be richer, better, and more costly, in proportion to this extent.

But no such scope in this department is proper for the gymnasia; and that very scantiness of apparatus, of which so much complaint is made, would actually sometimes be a benefit, by constraining teachers to moderation in pursuing these studies.

To give an example:—The course in botany could be abundantly furnished for all necessary purposes from the flora of each neighborhood. No forcing-house, not an exotic plant, would be requisite in addition. Nor is any place destitute of gardens sufficient to enable the scholars to observe the growth of plants, from their first sprouting to the blossom and fruit; a study worth more than a knowledge ever so thorough of the "*Philosophia Botanica*." And, in like manner, every place has its fauna, in its domestic animals, first, and in others. It is most difficult to furnish the needed materials for mineralogy; as, in this study, crystals are required. But even here good specimens can be obtained, with very small means, of the species which occur most frequently, such as quartz, iron pyrites, lead ore, &c.† There may often be found, again, in chemical laboratories, apothecaries' shops, &c., very fine crystals, costing very little, as of alum, &c. Lastly, many gymnasia might obtain assistance from the universities, by gifts of duplicates, &c., from the overplus of the collections of the latter. From the duplicates at Breslau, I furnished small collections, at a very moderate price, to thirteen educational institutions.

But these considerations would not comfort the opponents of nat-

\* Such a one was established at Bonn, in 1825; a second, in 1836, at Konigsberg; and a "Seminary for Real Teachers," at Tubingen, in 1838.

† Particularly if small specimens are used.



ural sciences in the gymnasia; they would now come out with their real meaning—the reason of their reasons. The business of the gymnasia, they say, is properly classical education, by and for the classic authors. This requires so exclusive a devotion of all the time and powers of the student, that none can remain over for instruction in natural science. Education should not give the scholar superficially universal learning; it is better for him to learn one thing well than a heterogeneous mixture of many things badly.

This view I have already controverted in my account of Sturm and his gymnasium. This teacher, with the utmost professional skill, was led astray by the idea of our opponents. He taught Latin, and almost Latin only. Greek was next; and no instruction whatever was given in Hebrew, German, modern languages, mathematics, history, geography, natural science, or drawing. The simplification can not be pushed further, nor better managed; and yet Sturm complains of the small results obtained.

One thing well is better than many ill; but the accent should be laid on "ill," not on "many." In the gymnasia, many things can be taught with great success, if it is done in the right way, at the right time, and in the right proportions. And, on the other hand, a man may limit himself to one thing, and teach that ill; as, for instance, if he teaches Latin only, and that with the design of enabling his pupils to speak and write it as if it were their mother-tongue.

The universities, say our opponents again, should afford the necessary means for those who desire to become acquainted with natural science. Doubtless they should, but not for elementary scholars in that study. They furnish the means for the higher philological studies, but do not undertake to teach beginners *mensa* and *amo*.

It is the more proper that the gymnasia should instruct in the elements of natural science, because boys are much better adapted to those studies than youths or men. How easily and firmly do recollections of plants, animals, and minerals impress themselves upon the mind in our earlier years; and how strongly is a child inclined to make himself acquainted and familiar with every thing which surrounds him! But with the elements of Latin it is wholly different. These have no excitement for the boys. And for the very reason that the material world is so stimulating to him, and occupies him so much, is it so hard for him to busy himself exclusively with the more intellectual elements of language. Let them now be compelled in that direction which is opposed to the tendencies of their child's natures. Will not such a measure result in their becoming unnaturally warped in mind, and ultimately insensible to all the beauty of the



heavens and the earth—and to all the beauty of the classics, too? For to feel the latter there needs a training of eye and ear to elevated enjoyment.

I have mentioned that I instructed gymnasium pupils in mineralogy in Breslau and Erlangen. These usually attended at 11 A. M., at the end of their morning-lessons. It may be imagined that they came so weary as to be disinclined to attend. Very far from it; they came punctually, and of their own free will. They took hold of the study with all their hearts; and indeed showed in most cases far more disposition to like it, and clear comprehension of it, than many older than they. It was here that I learned how well the rudiments of natural science are adapted to boys, and that, when they have been working hard at their studies in language, it is a proper and natural impulse which leads them to refresh and recreate themselves by studying crystals and flowers.

A writer on natural science has required that each pupil should, at least, bring with him to the university a few thousand names in natural science—expressions being by this, of course, intended for correct ideas in natural objects. Without pretending to fix on any precise number, this at least is certain, that, to students possessed of such a supply, lectures could be delivered of a kind very different from those which must now be delivered—lectures which would deal with generalized views, and would treat profoundly of their subjects. The gymnasias must bear the blame of the fact that the universities have to instruct in the very A B C of natural science. If it be asked in what classes of the gymnasium (including the Latin schools) instruction in the natural sciences should be given, I reply, In the lower and lowest; for experience has shown me that the younger boys are capable of retaining ideas of minerals, plants, and animals as well as, and usually even better, than youths.\* And these beginners in Latin, whose school-life is all effort and labor, need something in the nature of refreshment more than any other scholars. It is not until they comprehend the classic authors that they find a pleasure in their studies in language.

But teachers in languages are apprehensive that adequate instruction in natural science will render their boys averse to the former study, not to mention the time that would be occupied. Experience has, however, convinced me of the opposite. Those pupils who distinguished themselves in my mineralogical classes were also among the foremost in the gymnasium.

\* The case is different with those departments of natural science which require mathematical knowledge, and do not so much depend upon the intuition of the senses. These—mathematical geography, for instance—should only be taught in the higher classes.

The fear that the study of natural science will render the pupils averse to that of languages can have no substantial basis, except when it is made a mere superficial diversion, instead of a serious and thorough study. In this latter case it does not seek merely an unintelligent communion of the senses with the material world, but the development of words, as an intellectual blood, from silent examination; an adequate translation of intuition into words. In this way it has the greatest influence upon thorough cultivation in the mother-tongue; a cultivation which proceeds from things themselves. And, as the poet says, the mother language is the mother of languages; what is useful for the former is indirectly favorable to the acquisition of the others.

I have even seen cases where the study of natural science first awoke a real liking and capacity for language. Things which the beginner at first sees corporeally, singly, which it is difficult for him to comprehend and to survey to his satisfaction, have afterward, under the dominion of the senses and the understanding, and by means of language, become arranged together, connected, describable, in short thoroughly understood. One name describes innumerable individual substances; and the natural philosopher sets down upon a few pages, briefly and clearly, the result of many years' investigations. The student feels doubly the magic power of words for having first felt the resisting power of the material world; and he experiences a pleasure as if, after a long and wearisome journey on foot, he should suddenly receive wings, and ascend easily and swiftly into the heights of the air, looking down upon the long, weary way over which he had before been traveling.

But the thorough mastery of one subject of study trains the student to thoroughness in others, even the most different. If he has acquired, by his studies in natural science, a clear, definite, and sure view and comprehension of the creation, and a corresponding power of expression, he will afterward acquire similar clear and definite conceptions as to language, and will learn to speak and write clearly and definitely on whatever subject he understands.

The influence of natural science will be especially valuable upon the study of history. The former pursuit requires, unconditionally, humble and self-denying views of the material world, and treats as absurd that silly or proud obstinacy which would lay down narrow limitations, and then confine nature within them; and thus it educates the mind to the habit of forming clear and undistorted views of things. And a mind thus trained becomes capable of ready and correct views of men and human life. It can recognize, in minerals and plants, and in men also, a fixed and unvarying plan; and all disfigure-

ments or distortions, for the sake of aiding any superficial theories, will be painful to it.

It is common, in gymnasia, to give only one, or at most two, hours' recitation a week to studies not reckoned as important as those we have been discussing—as geography, for instance; and this plan is often carried through three or four years, in successive classes. This, it seems to me, is an unfortunate method. It occasions those studies to be esteemed mere side-studies, of which a less thorough knowledge will serve. The pupil is sure to see this, and governs himself accordingly. If he receives, for instance, twelve hours' instruction a week in Latin and but two in geography, he not only estimates that the value of Latin is to that of geography as twelve to two, but he takes less pains in studying his geography, because his teacher is less strict in his requirements in it. And his examination and testimonials will only confirm his views on this point. But no pupil should esteem any thing which is taught him a secondary study.

Instead, therefore, of creeping along in this spiritless manner through several classes, at the rate of one or two hours a week, it would be much better to devote as much as four hours a week to the study during a year, and then to stop. Natural science, for instance, might be studied for one year at four hours a week, and geography in its place the next year; and so on. This plan would give the pupils a liking for the study, as they would feel that it had some life in it; whereas, the other mode would render it tedious and long protracted, and would afford them no pleasure at all, and least of all that of thorough learning and investigation.

If the boys have, in the under classes, got the ideas of minerals and plants well impressed on their minds, there need be no fear that they will forget them. These ideas may perhaps pass a little out of fresh remembrance; but, in the second grade of the study, at the university, they will soon return again. The student will not then have to work up his lessons with a botanical hand-book, by means of laborious comparison of descriptions; he will at once know that this flower is a daisy and that a dandelion, because he has always known it from a boy. He will not have to learn what the flower is, but only its Latin scientific name; and thus he can bring to the more comprehensive and profound investigation of the vegetable world eyes and understanding already trained.

### III. EXTENT OF ACQUIREMENT.

I allude once more to the perplexity and doubts which, in view of the extent and depth of the natural sciences, must annoy the teacher who does not know how and where to begin, toward what end to

look, and what way to pursue. I have already in part shown how these difficulties may be overcome.

But the question to answer here is, whether knowledge of nature, and pleasure in it, are the exclusive privilege of the learned by profession; and, further, of that portion of them who have reached the highest point of learning? Are there not degrees in knowledge; and can not even the beginner find pleasure in the truth of that degree to which he has attained, if it be really truth? The teacher need not trouble himself about the 78,000 species of plants, nor the difficulty of classing the gramineous and umbelliferous plants. Let him take pleasure in his success, if his pupils have become acquainted with a few hundred characteristic plants, and have studied closely the growth of a few of them from their first sprouting to the ripening of their seeds.

Similar principles are true in the other departments of natural history. Most of my scholars in mineralogy have been able to devote to it but one half-year. My task was, to determine what they could learn within this time—not half-way and dimly, but wholly, clearly, and surely; and thus I dared not fix my limit at too great a distance. Where I did fix it will hereafter appear. At present I will only say that my best pupils acquired a satisfactory acquaintance with the most important, simple, and clear species of minerals,\* and a clear perception, derived from actual observation, of the consistent laws which prevail throughout them. It is a consideration which may console the teacher of natural science, for the low degree of knowledge reached by his pupils, that even the greatest masters, who have attained to the highest point of learning, have confessed, with ingenuous humility, how much was that of which they were ignorant.†

#### IV. BEGINNING.

"We have but little solicitude," I think I hear some say, "for the more or less of knowledge of nature which our pupils shall attain, but much about our own ignorance where and how to begin instructing in it. For we are convinced that eminent men have fallen into error on this point."

The difficulty of adopting the right mode of beginning occurred to me when, twenty-five years ago, I undertook to give practical instruction in studying mountainous countries to the Prussian mining pupils; and induced me to write the following considerations upon the commencement of geognostic studies.

I will now state the method which, in my opinion, the student should follow.

\* Such as fluor spar, lead glance, iron pyrites, garnet, &c.

† This is an expression which has a very different meaning in the mouth of the master and in that of the scholar.

He should first examine, in all directions, the neighborhood of his residence, and should make himself so thoroughly acquainted with it that he can call it up before his mind whenever he chooses. Such an acquaintance is the result of the unconscious and fresh pleasure which youth, joyful and free from scientific anxieties, will find for itself in such an examination, obtaining in this artless way a simple general impression of the vicinity, not forced upon him artificially by a teacher. He is not teased, while he is rejoicing in the blue heavens and the rapid motions of the clouds, in the oak woods and flowery meadows, where the butterflies play, by a professor with a kyanometer, to measure the blue of the sky with, nor by a recommendation not to stare into the woods, but rather to ascertain whether the oaks are *Quercus robur* or *Quercus pedunculata*; or, not to look at the flowers in the meadow all at once, as if they were a yellow carpet, but to take his Linnaeus and determine the species of this ranunculus. No entomologist is setting him to chase butterflies and impale them. Neither is the youth, when inspired to devotion by the snowy Alps, glittering in moonlight, like so many spiritual, silvery forms of giants, annoyed by a geologist talking to him of granite, gneiss, and limestone, or of the junction and inclination of strata. The young enjoy the heavens and the earth as a susceptible painter or an ingenuous poet does. In this first paradisaic pleasure is planted the seed of the perception of an intellectual world, whose secrets will not be fully ascertained and understood even after the longest and most active life of scientific effort. But most teachers, by the dispersion of these simple impressions of nature, forcibly destroy these earliest pleasures of children, the brightness of the imaginary world which they see. Even the great Pestalozzi falls into an error on this point, when he says that "It is not in the woods or meadows that the child should be put, to become acquainted with trees and plants. They do not there stand in the order best calculated to display the characters of the different families, &c." That is, we ought to take the child into a botanic garden, arranged on the Linnæan system, so that he may study plants in the order of their species. To me this seems like saying that the child ought not to hear a symphony, because that would be a mere chaos of sounds to him; he should rather have played to him, first, the first violin part, then the second, then the parts for the bass viols, the flutes, clarionets, trumpets, &c. It is true that in this way he would hear the separate parts, but not the bond of thought which makes them a symphony. Jahn was much more judicious in his gymnastic walks, when he said, not "we are going botanizing, geologizing, or entomologizing," but merely, "we are going to walk." How much more naturally do our youth, when the

bird-of-passage instinct seizes them at the university, wander through the father-land and rejoice in its grandeur, and lay it deeply to heart, without any idea of a premature, and painful, and usually repulsive studying of any particular subject. I hate this analyzing and lifeless elementarizing of the first youthful impressions of nature—this foolish, superficial, heartless, frivolous directing of the understanding prematurely out of its natural path—which is so sure to chill the youthful heart and render it old before its time. The utmost attainments of a mind thus trained must be—unless aided by remarkable natural qualities—to observe with the bodily eye; to use the reason, but not with pleasure; to derive mere lifeless ideas from creation; and to represent the objects thus conceived in equally lifeless descriptions, like the ghastly wax figures which afford a repulsive imitation of living men.

There is, however, a mode of learning intelligently, which is not chilling, but thoroughly genial and appropriate. But, it should be observed, the mode of instruction just described has a diametrical opposite in that whose advocates despise the adult reason, and would constrain themselves to remain children always—to feel, and only to feel. Among these advocates are prominent the numerous disgusting, pitiful poetasters of our time, who undertake to deal with nature in so remarkably childlike a manner. Their false simplicity and innocence is to real childlike innocence what a French actress, who plays the smart chambermaid, is to a truly noble young damsel. He who feels himself a man should endeavor in manly wise to understand and represent nature with as deep poetic feeling, and as gigantic understanding, as that which Shakspeare used in delineating men and life. But I return to my subject.

If the first mental growth of the young is watched over in holy quiet, the results of the mode of training which I recommend, how prosaic soever they may appear, will not be prosaic. The recollection of youthful devotional premonitions will become a hope of realizing them, and will enliven, strengthen, and inspire every effort. After you have enjoyed the unmingled, complete, rich pleasure of a full symphony, you willingly undertake the wearisome labor of becoming familiar with each part of it; for each is to you not a dead thing, but a living portion of the whole symphony, whose collective remembrance lives in your soul. And if now, knowing all the separate parts, you hear the symphony again, you hear with pleasure both each separate part and the united sound of all; and your apprehension of the whole symphony, previously simple and obscure, develops and becomes clear.

In a similar manner the learner proceeds, from passively offering himself to receive impressions, from an artless susceptibility to the



collective impression produced by the locality examined, to an active effort to distinguish this impression into its component parts. The great compound picture of the district about him divides into innumerable little ones, of towns, men, animals, trees, flowers, and in like manner do the mountains—for instance, their minerals, and their structure.

What has been said of the method of geognostic study, both of its rudiments and of its ultimate purpose, is applicable, as we shall see, to other branches of natural science.

#### V. SCIENCE AND ART.

"As the susceptible painter, the ingenuous poet, rejoice in the heavens and the earth, so does the youthful heart." And, I may add, the future geognosist. But, it will be asked, does this laborious and prosaic workman proceed from the same initial point of education as the passionate and delicate painter? I answer, decidedly, Yes; and, I add, other departments of art begin, in like manner, coincidently with other departments of science. If a boy loves flowers, he may become equally a botanist or a flower-painter. The celebrated painter of animals, Paul Potter, the author of "*Reynard the Fox*," as well as the great zoölogist, Cuvier, all, as boys, took delight in animals, and had an eye susceptible to them. A liking for beautiful mathematical bodies may characterize a future mineralogist, or mathematician, or architect. Susceptibility to colors indicates a future painter or a future optician; and an ear for music, either a musician or an acoustician. Nor do the different roads of the artists and naturalists, who proceed from the same point, ever become entirely separate. Michael Angelo was a great anatomist; Durer wrote on perspective, and on the relations of the human body; Otto Philip Runge constructed a theory of colors. Goethe sang of flowers, and wrote his valuable "*Metamorphoses of Plants*;" he had an eye seldom equaled for the beauty of mountains, and he both observed and described them in a masterly manner, according to their geognostic character. A man who is endowed with susceptibility to beauty, and the artist's power of representation, and also with clear and energetic thought, will produce scientific works containing beauty, and artistic works of profound thought. It is not only true that we find united, in extraordinary men, great capacity both for science and art, and that the first rudiments of scientific and artistic training are frequently the same, but we see that many arts need the aid of science, and many sciences of the arts. The architect must understand mechanics; the painter, perspective, anatomy, and the chemistry of colors: botany and zoölogy require good pictures of plants and animals; and mineralogy, clear and accurate drawings of crystals.



Science seeks principally truth; but art, beauty. While the botanist endeavors to establish as correctly and completely as possible the idea of the species Rose, the painter tries to present his ideal of a *Rosa centifolia*; and the poet leads us, through the gardens of poetry, to roses of unimaginable beauty. While the Greek sculptor carved the Lions of St. Mark, Cuvier gave us an excellent description of the king of beasts. From the school of Werner came scientific works on mineralogy and mining, and likewise the miners' songs of Novalis.

I have lengthened this discussion, in order to bring out a pedagogical rule to which I have already referred in speaking of teaching geognosy. It is, to have constant reference, not only at the beginning but throughout all the course of instruction in natural science, to the beauty of God's works; to cultivate the pupils' susceptibility to this beauty; and to develop, along with the receptive faculty, however directed, the power of representing as perfectly as possible the thing seen: so that, for example, the boys shall learn not only to examine and recognize plants and crystals but to draw them. It is more necessary to refer to this, because the beauty of which I speak is so wholly indifferent to so many teachers. They make no endeavor to learn whether their pupils take such pleasure in flowers, and examine them with the same penetrating attention that a flower-painter uses. They rather make their tyros analyze them, pull them to pieces, physically and mentally count their anthers and pistils, &c. Before the boys have even gained a thorough and familiar idea of the flower, they are made to endeavor to get an idea of its species in this destructive manner.

Especial haste is used, in those departments of natural science which are based on mathematics, in proceeding from observation by the senses to abstract mathematical theory. It is no wonder that this is the case in our day, when atomistics and mechanics, in a mathematical form, are every where forcing themselves forward, and where so many are seeking after mere bare truth only, without any reference at all to beauty.

#### VI. MATHEMATICAL AND ELEMENTARY INSTRUCTION IN NATURAL SCIENCE.

Mathematics are the root and blood of a knowledge of the laws of nature and of art.\* It reveals the laws of crystallization and of chemical unions; the number of petals and of anthers; the figure, size, and motions of the stars. It is the soul of the firmness of mighty cathedrals, of harmony in music; it gives the painter proportion and

\* "The form was in the archetype before it was in the work; in the divine mind before it was in the creature."—Kepler, "*Harmon. Mundi*," l.

grouping, and lives in the hexameters of Homer and the choral measures of the tragedians.

But can we for such reasons, when instruction is required in music, drawing, &c., answer, Yes! we teach mathematics, and shall thus at least indirectly prepare the pupil for the studies which you wish? By no means; and as little would it serve where instruction in natural science is required. These considerations lead to the very important question of the relations between mathematical instruction and instruction in drawing, music, natural science, &c. On this point there are two opposite opinions; one of which would place mathematics at the beginning of the course, and the other at the end.

In support of the former of these doctrines, it may be said, "If we grant that mathematics form the theory of laws of nature and art, what could be more appropriate than to begin with it? When the scholars have gained a thorough acquaintance with pure mathematics, they thus become capable of easily mastering any natural science, or of acquiring knowledge and skill in the arts. In the pure mathematics is the point for setting the lever which will move the world; it is the center from which light radiates to innumerable points on the circumference—to innumerable sciences and arts. Should the teacher rather choose to select from their multitude one point or a few, and thence seek to reach the center?"

This view is plausible, but untenable.

The history of the arts and sciences is opposed to the idea of beginning with instruction in pure mathematics. The course of development of the human race has not confirmed its propriety, either. The fact was not that minds of a purely speculative character, operating entirely within themselves, developed pure mathematical truth, which others afterward applied to nature and art. In this sense, there have been almost no applied mathematics. The truth is, that a gradual and deliberate apprehension of purely mathematical relations has developed in such departments as music, surveying, architecture, drawing, astronomy, geology, &c.,\* from a beginning of purely material conceptions, yet guided by the principles of mathematics, hidden within them as a human instinct. From this heterogeneous world of phenomena its common elementary spirit, the spirit of pure mathematics, arose subsequently. This succession of the sciences can not be too carefully remembered, for every scholar has to go through one more or less similar.

It is also a great error to believe that a person thoroughly grounded

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\* How completely new is the world of beautiful inter-related mathematical bodies which has arisen from the investigations into natural crystals, and how utterly were the great early mathematicians without an *a priori* knowledge of it!

in pure mathematics is thus fully prepared for all the arts and sciences which are based on mathematics—that he can juggle with them by means of his formulas. Is it supposed that one who has learned general bass—the mathematical basis of music—has by that means trained his feelings and his ear? Does knowledge of perspective make a painter; or of metrics, a poet? Is one who knows how to calculate a crystal a mineralogist?

On the contrary, the reason, during those years when it is dormant, but the senses are active and hungry, is powerfully stimulated by pure mathematics, and developed at the expense of the senses. The boy, under an unnatural mental excitement, and thrown into this wholly subjective train of thought—this activity of the reason exclusively within itself—loses his quiet, peaceful, and natural bodily sensitiveness to the material creation. He will even, in time, lose the humility with which he sought after the laws of God's world, with self-sacrifice and sincere industry, and with which he felt a pious joy in discovering them; and he imperceptibly becomes a scientific egoist, having no feeling for faith in any thing except in his own mind and mental labor; and who, even if he discovers a natural law, can only rejoice in it as in the child of his own intellect—as if he were a law-giver to the creation. I am not exaggerating. Only consider any one of many trained naturalists, who have been educated in this way, whether they are not such as I have said.

If, now, we would preserve a natural and proper susceptibility to nature in our pupils—if we would protect them against such a premature and bald forcing of the growth of the understanding—we must permit them to begin their studies with the natural and easy observation and practice of youth; and gradually bring them forward from this to a properly pure mathematical mode of investigating and training.

Mathematical instruction, too early put in the place of physical observation of nature, is so far from compensating for it that it is injurious to it. Bacon's observation is here eminently in point: "Mathematics should terminate the study of natural philosophy; it should not introduce or create it."\*

#### VII. INSTRUCTION IN MINERALOGY.

With Werner opened a new era not only in the science of mineralogy but also in the method of instructing it. Before him, scientific mineralogy was scarcely known; or the thorough knowledge, description, or classification of minerals. Naturalists were satisfied with un-

\* What has here been said will be illustrated by subsequent examples. Further details will be found in the chapter on Geometry.

derstanding and teaching such of their peculiarities as were most obvious. Gold, they said, is yellow, bright, and heavy. But these same terms might be used to describe copper pyrites, or iron pyrites—as in Messing. Werner perceived how defective were such descriptions; and how far they were from being sufficient to describe the peculiarities of a mineral or a species—and still more to distinguish with entire certainty one mineral, or one species, from another.\* He believed that not merely this or that prominent characteristic of a mineral, but all of its characteristics, the most obvious and the most recondite alike, should be understood and expressed. It was in this belief that he wrote his "*Theory of External Characteristics*," (*Lehre von den Aeussern Kennzeichen*.)† What he here aimed at was, in fact, an exhaustive statement of the sensible characteristics of minerals; though all that he stated himself to seek was the best, fittest, and most invariable expressions for their characters, their species, and their grades. The motto of his book was "Be not facile in choice of words; in order that you may agree in things." And he arranged these characteristics in a definite and well-adjusted order.

In describing all the peculiarities of a mineral, he paid all his attention to the order, clear comprehension, and expression of its external characteristics. He endeavored to set forth in words the whole of the peculiarities of the mineral, in the most correct manner, so that his description should fully state the elements of the whole impression made by the mineral upon the senses.

In a similar manner he described a species of minerals; but with this difference, that, whereas the single stone has one definite color, one definite mode of crystallization, &c., the species to which it belongs usually includes a variety of related colors and crystals, which must be described.

Not to enlarge upon the brief general theory of classification with which Werner began, he commenced his mineralogical lectures proper with instruction in the external marks. This was followed by a description of the species closely connected with it, and by a rapid exhibition of the groups described. His oral lecture, which was of great value in itself, was the prominent feature; and the actual display of the groups of minerals was quite subordinate.

"Words are good," says Goethe, "but not best." This was true in the present case. I have already mentioned how we strove in vain not to be confined to a mere description of the minerals, but to ob-

\* It is this defectiveness in descriptions which leaves us so often at a loss to know what mineral the early writers—Pliny, for instance—meant by any given name.

† This work appeared in 1774, and was translated into various languages. Werner was twenty-four when he wrote it.

tain a knowledge of the minerals themselves; and how it was chiefly this unpleasant experience at Werner's lectures which afterward caused me to work out another quite opposite method in teaching mineralogy.

It seems to me the natural way of beginning, to let the pupil first examine the mineral, without at the time enlightening him with any oral explanation whatever. In this way he receives a first simple impression on the senses. If this impression is remembered, he may then be told the names of the minerals examined.\*

It is important to begin with instructing in external characteristics, because this instruction communicates the results of the most thorough analysis of the general idea into its constituents. It would be wrong to begin by making the pupil observe in one mineral the weight alone, in another only the color or only the hardness; for such a method would break up the quiet, thoughtful, receptive mood proper to obtain an apprehension of the total idea.

But after having mastered this total idea of the mineral, the pupil must, especially if he desires to compare it with similar minerals, and to distinguish it from them, reduce this idea to its constituent peculiarities, even to the varying modifications of these peculiarities. For instance, on comparing gold with iron pyrites he will find both yellow; but there is a great difference between the pure, clear yellow of gold, and the pale whitish of the pyrites. He finds gold to be soft and malleable, while the brittle pyrites will give off to steel abundant sparks, large and smelling of sulphur, &c.

Thus, by a careful comparison of the separate peculiarities of both minerals, their great difference will clearly appear; whereas, without such a process, only an indistinct notion of them would be had. Indeed, there are many minerals of which the general idea would lead into great errors without a closer analysis of their qualities. Thus, the student would be much more likely to class a beautiful yellow polished crystal along with the topaz than to rank it as similar to a piece of insignificant, opaque, homely, white quartz, though the latter is its proper place.

Werner's theory of external marks is very simple, and quite sufficient to enable mining officials to deal with the minerals which they are likely to meet with. These officers can not go into delicate investigations. For example, the purely scientific mineralogist determines the specific gravity of a mineral by means of a fine balance. The specific gravity of water is taken as the unit, and that of the mineral is reckoned from it, and carried out to three or four decimal

\*The commencement of mineralogical instruction is entirely like that of geognosy and botany; in every case, a vivid and permanent impression should be had of the total idea before any analysis of it.

places. The specific gravity of water being thus 1,000, that of gold is 19,258. The miner can not usually attempt so accurate a determination; but he can make that which Werner gives. He makes five grades of specific gravity; and very judiciously taught his pupils to determine these, without balances, by poising the substance in the hand. He required them to be able to say only "Gold belongs among the extraordinarily heavy minerals;"\* not that "its specific gravity is 19,258."

What Werner did not require from mining officers we can still less require of new beginners in mineralogy; they must first learn to estimate specific gravities by the hand.

Werner's mode of dealing with other points was similar. He treated his subject exhaustively, but was very far from giving a delicately accurate physical description of every separate item; nor will he be found to furnish a mathematically developed crystallography.†

As crystallization is one of the most important, if not the most important, characteristics of a mineral, I shall devote a little space to it.

The angles of crystals are mathematically true and unvarying; but the size of the side varies infinitely, without affecting the angles. Thus, for instance, we seldom find a cubic crystal with six equal sides; but the right angles of its sides and corners are invariable.‡

The beginner will find his study of the polyhedral crystals much perplexed by these variations of the size of the surfaces; and, to assist him, he is usually furnished with models, in which the corresponding sides are made equal. His model for the cube, for instance, has six equal squares; that of the octahedron, eight equal and equilateral triangles.

Above all, the beginner should be drilled in the recognition of crystals by the eye; and his perceptions of their beautiful symmetry, and of the various relations connected with this symmetry, should be trained.

I can not here set forth the details of the method which I should recommend in teaching mineralogy.§ I shall only observe, in general, that the teacher must be careful not to carry the pupil too soon from the use of his senses to the mathematical part of his study.||

\* This class includes minerals whose specific gravity is over 5,000.

† It is not meant that the teacher ought to restrict himself entirely to Werner's theory of the external marks; there are many points (in crystallography especially) which must be made more clear and definite than he made them. But, like Werner, the teacher must never lose sight of the elementary attitude.

‡ More will hereafter be said on this point.

§ On this point I refer to the chapter on Geometry, and to my "*A B C-Book of Crystallography*," (*A B C-Buch der Krystallographie*.)

|| What here follows may be used as additional to what was said above of the relation between mathematical and elementary instruction in natural science.



It is enough for the beginner to know that the cube has six sides, twelve edges, and eight corners. But that the edge, that the diagonal of a side, and the axis of the crystal, are to each other as the square roots of 1, 2, and 3, is a fact with which he has no business; nor has it anything to do with the recognition of natural crystals. Nor need he be given the use of certain mathematical aids. He should describe the twelve edges of a cube standing on a horizontal surface thus: four horizontal edges above, four below, and four vertical ones. But he should not say, out of Euclid, "There are six quadrilateral surfaces, and the cube has therefore  $6 \times 4 \div 2 = 12$  edges. That such a calculation does not afford a full description of its form appears from crystals, whose surfaces consist of equal numbers of sides, but not of sides of the same form. Vesuvianite, [*das Leuzitæder*,] for instance, has a surface of twenty-four trapeziums, and therefore  $24 \times 4 \div 2 = 48$  edges; but twenty-four of these are entirely different from the other twenty-four.

A beginner, if he understands subtraction, can by another formula ascertain very easily the number of angles of a body, of which he has not the slightest knowledge through his senses. This is, that the number of angles of a body equals that of its edges, diminished by that of its surfaces less two.\* If, therefore, I tell the beginner that a certain body has 540 edges and 182 surfaces, he can instantly say by his formula that it has  $540 - 180 = 360$  angles. But, if I give him the body itself, he is not in the least able to form such an idea of it as to determine that some of its angles are formed from six surfaces, &c. He may perhaps not even be able to state, without first reasoning with himself, how many surfaces, edges, and angles there are in a cube. In short, his formula serves him, according to the familiar German proverb, as an asses' bridge. He neither understands it nor what he discovers by its means; and the readiness with which he ascertains results by its use hinders him from strenuous labors to discover the right thing in the right way.

But how, is the next question, shall the pupil learn to analyze the external marks of minerals—to consider the mineral with reference to each individual characteristic? I reply: The best introduction to this knowledge is to take him through a collection arranged by external marks; in which each group, as far as possible, shall lie before him in the order of its colors, crystallization, &c. The teacher will need to give but very little aid—only to put into words what the pupil sees, or to require the more advanced pupils to do it themselves.

\*  $A = E - (S - 2)$  From this, E or S can be determined, if the number of angles and surfaces, or of edges and angles, is given.



This investigation of the collection should follow the general theory of external marks; which is indeed only an arrangement of the characteristics which the pupil has learned to know from the examination of single species.\* When the pupil has in this way attained a moderate degree of skill, in the objects and technics of the study, then, and not before, he is prepared to read mineralogies. Where the mineralogical author has translated minerals and species into words, a pupil thus trained can translate the words back again into minerals. Every word is to him a living incantation, which awakes the slumbering ideas previously impressed upon his mind.

But, in order that each word may awaken the corresponding conception in the mind, all ambiguity must, as we have already shown, be avoided, and only one fixed term be used for each mineral and each characteristic. This was what Werner meant by his "Be not facile in choice of words, in order that you may agree in things." And the converse is true: Be not facile in selecting things, in order that you may agree in words. To understand words is only possible when things are understood. The utmost definiteness in terms, the most accurate expression, will be useless to the scholar, unless the most definite corresponding impressions exist in his mind, to be called up again by those expressions—by words. "No description," says Forster, in his "*Views on the Lower Rhine*," (*Ansichten vom Niederrhein*), "will convey to another what my own eyes have received directly from the object, unless he has something with which to compare that object. The botanist may describe to you a rose with the most appropriate terms of his science, may name all its parts even to the smallest, may state their relative size, form, position, substance, surface, and coloring—in short, he may give you such a description as, if you had the rose before you, would leave nothing to desire—and yet it would be impossible, if you had never seen a rose, for him thus to call up an image of it which should correspond with the original. No painter would dare undertake to paint from description a flower which he had never seen. But take but a single look, one single observation with the senses, and its image is indelibly imprinted upon the mind." Can any one doubt whether Forster is right, or that learned man who flattered himself that he had so perfectly described a certain cabinet of antiquities that it might safely be entirely destroyed, because a skillful sculptor could completely restore it from his description? If Forster is right, which I do not doubt, then it must needs be admitted that the endeavor is utterly foolish to teach a knowledge of minerals by mere oral instruction and reading of books.

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\* For further details on this point see Appendix II.

I have thus endeavored to describe the method of my instructions in mineralogy, and its reasons; and to show how the pupil may be gradually carried onward, from his first silent and simple observation of nature, to a full and intelligent comprehension and description of minerals and all their peculiarities.\* It remains to offer some observations on the traits of pupils.

#### VIII. CHARACTERISTICS OF PUPILS.

There is a universal method of instruction, applicable to all pupils, and based upon the nature of its subject, which is the same for all pupils, and upon the universal qualities of human character. I have hitherto discussed this method, which was that followed by me in teaching mineralogy.

It is usually thought that he who is master of a department of study is a qualified teacher of it; too little regard being had to his knowledge of his pupils. And thus many teachers are deficient in an understanding of the universal relation that exists between the pupil and the study, and in the skill in teaching which depends upon that understanding—the universal method.

I soon learned, however, not usually instructing by the ordinary method of lectures, how little there is in common in mineralogical instruction and in the universal method. I found pupils of so distinctly different and even opposite characters that I saw plainly that it was impossible to instruct them all in the same way. And the longer I taught the more I felt the necessity of studying the peculiarities of pupils with the same attention which is usually devoted only to the subject of instruction; that the teacher of natural history should be able to draw up as good a monograph upon single scholars as upon single species. But in order to pay attention to each individual pupil, and to be able to instruct him in a proper manner, the teacher must be such a master of his subject that no difficulty will rise to embarrass him while he is teaching. In this mode of regarding each single pupil I have had many experiences, bad and good; of which I will here mention a few.

And, first, the bad ones.

Complaints are made of inactive muscles, of weak arms, shoulders, and legs; but much more complaint should be made of imperfect senses, and especially of eyes dulled almost to entire insensibility. This I have found, to my sorrow, in many pupils, particularly the older ones. And no wonder. Brought up in the city, among books, their eyes were directed to almost nothing except reading and writing,

\*It is only after having reached this point that they should take up mineralogical chemistry.

a sad and grievous slavery, in which the unfortunate senses were left almost destitute of any pleasure, stimulus, or refreshment, and without any cultivation by use. The eyes of the younger pupils were more active, because they had not been so long in slavery. There were however some exceptions among the older ones, in the cases of those whose early experience had obliged them to use their eyes; as in some miners and smelters, young people from the country, and a painter's son.

This dullness of eye was partly bodily, but chiefly mental. It was only very gradually that the torpid bodily senses grew more acute, and that the active reciprocal stimulating influence between mind and senses, so long disused, was re-established. What made this re-establishment specially difficult was the fact that most of them, brought up under oral instruction on all subjects whatever, partook of the prevailing belief that every thing in the world could be communicated orally, even mineralogy; and that therefore there was no need whatever for a direct observation of nature by the senses. They were in despair at any attempt to induce them to make such observations; and intimated that their teacher was pre-eminently endowed for that purpose by nature, and that it would be far wiser for him to tell them what his good, well-trained eyes saw in the minerals than to try to make them see, with their incapable and untaught eyes. There were but few of them whom I could make understand why mere oral lectures were useless in this pursuit; and I succeeded but with a few, who were practicing bodily exercises. I said to them that they needed to exercise their eyes in this study, as much as they did their arms and legs in their gymnastics; and that they might as well expect to learn to run and leap by attending lectures on Jahn's Gymnastics as to become acquainted with minerals by lectures on them. This made the case clear to these few.

Again, there was another class of pupils with whom I had great difficulty in being understood. This new requirement, to use their torpid eyes, and to examine the minerals attentively and quietly, seemed very extraordinary to them. It was as if I was making them read a book in a foreign language, which I could translate, and which, out of obstinacy, I would not. Innumerable questions betrayed their thoughts. I ought at least to tell them the names, before they examined the minerals. And when I replied, that those pupils who gained clear and definite ideas of the appearance of the minerals, without knowing their names, would please me infinitely more than those who should remember their names without their appearance, they did not understand me; for they had usually been accustomed, in their study of geography, history, &c., to satisfy their teacher with

the emptiest memorization of names. I had the most trouble with some grown-up persons, whose powers of thought had been unnaturally stimulated, and who had thus lost that quiet mood of mind which is indispensable for enjoying the benefit of a real thorough and intelligent receptivity. They were incessantly interrupted and diverted by notions that occurred to them—the untimely misconceptions of a cursory, superficial mode of observation.

But this will suffice for these unfortunate experiences; which I do not lay to the account of my pupils, but which were the necessary outgrowth of the period. I am the less disposed to blame my pupils for these things because I myself, when a scholar, had the same experience, even sometimes to a greater degree. I was even earlier in my conviction that every thing could be learned out of a book; and in feeling the same despair at being set to use my eyes. During subsequent years, especially, I have enjoyed a large overplus of pleasant experiences, even with pupils who were at first exceedingly awkward. If the visual powers are once awakened, if the least mutual stimulation is awakened between the senses and the mind, the susceptibilities of the mind and the senses increase with every day.

It appears, from what has been said, that every pupil develops himself in his own peculiar manner. Some of them were lucid, intelligent, prompt, appropriate, definite, and certain in answering; while others were more inclined to feeling, quiet and withdrawn within themselves, slower to understand and later in attaining power of expression.

Some seemed to have equal talents for every thing; while others were inclined in some one direction. Some, particularly, seemed to have a remarkable susceptibility to color and luster, but to be quite wanting in perception of form; while others were precisely the contrary, having an acute eye for form, but being deficient in feeling for luster or color. These last were often inclined to proceed quickly from actual observation of objects to mathematical treatment of them; some even carrying this tendency so far as to begin it altogether prematurely, and as to be entirely indifferent whether an octahedron was the most beautiful diamond, or a wooden one. In this way they forgot the most important consideration for them; namely, that they were dealing with the marvelous creations of God, not with the mere thoughts of men.

The active and sensitive eyes of those who had a feeling for color and luster, on the contrary, became gradually educated to a full apprehension of the crystals, in all the beauty of their forms and modifications. They also comprehended the mathematical laws of these

forms, so far as they could be deduced immediately from actual observation of them; but showed a want of facility in mastering the pure mathematics of the subject, and a dislike for it.

Some pupils showed similar tendencies toward particular groups of minerals, and dislikes for others; and they mastered more easily a knowledge of those they liked, even when they seemed, to one free from any prepossession on the subject, much more difficult than the others.

These and other peculiarities of pupils, which I can not fully describe without giving an account of each individual pupil, became the cause of my opinion that teaching exclusively in one general method is quite impossible.

#### IX. INSTRUCTION IN BOTANY.

In the private school at Nuremberg, where I instructed for three years, I also taught botany. The plants used were found in the neighborhood of the city, or in the garden of the institution. The most common garden-plants, as being best known and most useful, were made most prominent—as domestic animals were in zoölogy. When the boys returned from their excursions, the plants they had collected were laid fresh together on a table, examined, and named. At the end of the lesson, each pupil entered the names on a paper, and afterward in a book, divided as follows:—

TIME.	NAME.	PLACE.	REMARKS.
May.	Granulous Saxifrage.	Mögeldorf.	Has a granulated root.

The pupils might write under "Remarks" whatever they chose; and each, of course, inserted what had struck him most in looking at the plant. I have already observed that I considered it a very great error to require from beginners a complete and exhaustive description; inasmuch as this must be based upon a previous analysis of a total conception, which they have not yet attained.

These registers of plants served afterward as botanical calendars, from which could be seen where and at what time certain plants could be found; as, saxifrage at Mögeldorf, in May, &c. They also now began, of their own accord, to classify the species into genera. A boy brought in a plant, and was told that it was a speedwell, and after a few days he brought in another, and very correctly said, "Here is another sort of speedwell." So simple and natural, in strongly-marked plants, is the arrangement into genera of species.

It will be found judicious, lest this scientific examination should make them indifferent to the beauty of the flowers, and make them too exclusively occupied with the use of the intellect alone, to employ such as show sufficient taste for it, in drawing flowers.

During the first summer my pupils acquired a knowledge of between three and four hundred varieties. This is rather too great a number than too small; it is better to get a thorough and permanent acquaintance with a few plants than an indistinct and superficial one of many.

#### X. NECESSARY INCONSISTENCY.

Bacon says,\* "There is scarce any entrance to the domain of human science than to the kingdom of heaven, into which one can not enter unless he become as a little child."

The poet† makes a similar demand upon the public, at the representation of his dramatized plays; where he demands that the spectators shall for a time forget their education and their knowledge, and "become children again." But the people answer him, "We thank God that we are no longer children; our education cost us pains and sweat enough."

I have before complained that the pupils at our schools of learning dive so entirely among books and lectures—in a world of words, and so entirely shut out from any active intercourse with nature and life—that they have usually, by the time that they enter the university, forgotten the first impressions of nature which they received in childhood, and seem even to have lost the child's capacity of receiving them. Their minds, in this case, must now be first awakened anew to nature, and brought back to their former childlike condition, not exclusively by actual observation, but chiefly by words—by the stimulus of properly-directed oral lectures.

It was from this point of view that I endeavored to perform my task of lecturing on general natural history. And even in my lectures on mineralogy, I accommodated myself to the necessities of the case. That is, although I regularly instructed my younger scholars in the manner I have described, yet in the subsequent academical lectures I varied, in one respect, from it. In order to render oral instruction possible, I was forced, whether I would or no, to begin with instruction in external marks; with a practical explanation of the technical mineralogical terms. In other respects I remained quite true to my earlier method.

#### XI. "MYSTERIOUSLY REVEALED."‡

Instruction in mineralogy, botany, and zoölogy leads, as we have seen, from actual inspection to the development of the ideas of species, genera, &c., which are component parts of created beings, and are revealed by examining their appearances. These ideas connect what are of like kinds, and separate them from those unlike them.

\* Nov. Org., I., 68.

† Tieck, in "Pass in Boots," (*Phantasia*), 2, 247.

‡ "Thou stand'st mysteriously revealed." Goethe's "*Winter Journey to the Harz*." (*Harzreise im Winter*.)



But when we have correctly learned and expressed these generic ideas, have we thus arrived at the actuality of their existence?—have we learned what is the essence of their being and life?

Haller, who all his long life unweariedly and honestly investigated nature, may answer :

“No spirit, however creative, can pierce the secrets of nature.”

No created spirit he meant, of course; the Creator is to be excepted. And the great Bacon agrees with Haller: \* “It is falsely claimed that the senses of man are the measure of things; on the other hand, all the apprehensions, both of the senses and of the intellect, correspond to the essential nature of man, not to that of the universe. The human understanding is like an uneven mirror in reflecting objects—it mingles up its own nature with their nature, and confuses and colors them.” And Newton’s doctrine is the same, when he says, “We see only the forms and colors of bodies, hear only their sounds, feel only their outer surfaces, smell only their perfume, taste only their flavor; the essence of their being we can perceive by no sense and by no reflection.”†

Goethe at one time controverted Haller’s assertion, but afterward agreed with it. He says,‡ “The true, identical with the divine, will never permit itself to be directly perceived by us; we discern it only in reflections, examples, symbols; in single and related phenomena; we become aware of its existence as an incomprehensible life, and yet can not escape the desire of comprehending it.”

Cuvier repeatedly admits that there are incomprehensible mysteries in his science. Thus he says, “The operation of external things upon the consciousness, the awakening of a perception, a conception, is a secret impenetrable to our reason.” The great zoölogist, who has surpassed all in investigating the laws of the animal creation, comes upon the question—what is life? and how does it exist? and he confesses that these important questions can not be answered; that life is a profound mystery.§

We often hear the confession, “How vast is that of which we are ignorant!” We readily admit that we know nothing of the interior of Africa, or of the lands near the poles; that probably many new plants, animals, and minerals may be discovered there, and the like;

\* Nov. Org., I, 41.

† Principia, 3, I, 675. (Le Seur’s ed., 1700) “Their essence we can perceive by no sense, no reflection; and much less have we any idea of the essential substance of God.”

‡ Works, 51, 254.

§ Cuvier’s “*Animal Kingdom*,” translated by Voigt, vol. I, 9, 10. “All the endeavors of physicians have been unable to inform us how life is organized; whether of itself, or from some external source.” “The existence of organized bodies is therefore the greatest secret of organic economy, and of all nature.”



but what if we are convicted of universal ignorance of every thing included in the domain of science? I repeat: Have we effected a perfectly exhaustive investigation of any single existence or fact in nature? Is it not rather the case that every such fact has both its comprehensible and incomprehensible side, and, like the moon, turns one side toward us, sometimes lighter and sometimes darker, but keeps the other always turned from us!\*

Did not Cuvier, so mighty in investigating the laws of the animal creation, yet find each animal a riddle, and was he not thus brought to confess that life was a riddle to him?

When the mineralogist measures and computes, with his utmost accuracy, the primitive rhomboids of calcareous spar, and determines mathematically its relation to the many hundreds of crystallized forms which that mineral offers, does he, for all this, understand these rhomboids? Can he tell how it is that it becomes possible to split them in three directions, parallel to the three parts of rhombic surfaces, so that each surface of cleavage shall be a perfect plane—polished, and with angles mathematically true? We shall look to him in vain for answers to these questions.

The astronomer, of all men, claims to be the most scientific. He computes with accuracy the movements of planets, and comets, and moons, at vast distances of time and place, and demonstrates the most delicate observation in his astronomical prophecy as the correctness of a problem is demonstrated by the proof. Is there here also room for ignorance? I reply: Count one hundred while the minute-hand of a watch is going from twelve to one, and go on counting at the same rate. You can then predict with certainty that when you have counted six hundred the hand will stand at six, and when you have counted twelve hundred it will have completed its circuit. But notwithstanding this prediction, you may perhaps never have opened the watch, and may know nothing whatever of its construction or mechanism. Even so is it with the astronomer. However accurately he can compute the path of Jupiter, can he for that reason tell what are the essential qualities of Jupiter?† What man can even answer

\* "Because that which may be known of God is manifest in them." "For we know in part . . . but when that which is perfect is come, then that which is in part shall be done away . . . now I know in part, but then shall I know even as also I am known."

† Newton, who, as we have seen, considered the real essence of all bodies entirely incomprehensible to man, would of course reply that such requirements could not be satisfied. The originator of the theory of gravitation, he repeatedly declared that he knew only qualities of gravity, not its essence. Thus he says, "I have explained the phenomena of the heaven and of the sea by the power of gravity, but I have not assigned any cause for gravity." Again, having stated the qualities of gravity, he says, "But I have not been able to deduce from the phenomena the cause of these properties of gravity, and I offer no hypothesis." (*Princip.*, l. c., p. 676.) And in like manner in the "*Optics*," (Clarke's ed., 1740, p. 396.) "There are efficient principles, such as gravity, whose existence is testified to by natural phenomena; but what are the causes of these principles has never been explained. Every

the question, What is the essential nature of the earth—of this very earth on which you live? And if any one should pretend to have an answer to it, he may be replied to with the reply of the Earth-Spirit in Goethe's *Faust*:

"Thou art equal to the spirit which thou comprehendest—  
Not to me."——

Such considerations should not, however, lead to an apathetic despair of understanding any understanding of nature, but should only counteract the illusive notion that man can understand created things in the way in which only God, their creator, can understand them.\* To us nature is "mysteriously revealed."

But, it may be inquired, what is the value of this discussion in a work on pedagogy?

I reply: A recognition of the wonderful union of revelation and mystery in nature, and the clearest possible perception of the boundary between them, will exercise a most important influence upon the character of the teacher and upon his study of nature.

The mysteries of nature will direct him in humility and earnestness toward eternity; while he will investigate what is susceptible of being known with conscientious and persevering industry, thanking God for every pleasure which he receives from discovering the beautiful and invariable divine laws.†

And how can this state of feeling and this knowledge in the teacher fail to have the greatest and most excellent influence upon his methods of instruction?

Any one doubtful as to the goodness of this influence will be convinced of it, if he will examine the bad influence exerted on their scholars by such teachers as are destitute of the knowledge and feeling which give it; who live in a narrow circle of overestimation of themselves. For them there are no mysteries; they can comprehend every thing. And then it most commonly happens that they fail to observe and learn what is really attainable, while they weary themselves in vain over the incomprehensible; and thus, instead of ascertaining divine laws, they hatch out a parcel of chimeras, which in their presumptuous blindness they set up as being those laws. The proverb may well be applied to them, that they make fools of themselves by thinking themselves so wise. And they make their scholars fools.

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where the qualities are manifest, but their causes are hidden." And again, "There are originating causes (*principia*) of motion, as gravity. But the causes of these I leave to be investigated."

\* "By universal analogy."—(Bacon.)

† As Kepler repeatedly does.

## XII. LAW AND FREEDOM.

Beginners are dismayed at the apparent irregularity of crystals. On comparing, for instance, the model of a cube, of six equal sides, with a cubic crystal of fluor spar, whose sides are very unequal, he fancies that, notwithstanding the right angles of the spar, there is by no means as entire a regularity in the natural crystal as in the artificial model.

To remove this error, we may first consider the way in which laws prevail in the vegetable world. When the botanist says of the lily that its blossom has a six-petaled campanulate corolla, six anthers, a sexfid, capsule, &c., a German lily will answer the description as well as a lily from Mount Carmel. And so do the carefully painted lilies in old paintings; they have a six-leaved corolla, six anthers, &c. Thus the generic description, which the botanist gives, applies to lilies of all countries and periods. The close adherence to the law is evident; but an ignorant person, on learning so much, might probably conclude that all lilies were all exactly alike, and that accordingly great monotony must prevail throughout the creation. Such was the idea of the electress who denied Leibnitz's assertion that no leaf was precisely like another; but all her endeavors to find two precisely alike were quite in vain. It would be equally impossible to find two lilies exactly alike, though they grew upon the same stem. "The law of the Lord is unchangeable," but their unchangeableness does not produce a disagreeable monotony among the individuals subject to it; but under its protection there prevails an agreeable variety and unconstrained beauty.

This appears still more clearly in the animal kingdom; most of all in the human race. Here the law becomes less and less apparent, and the freedom of the individual is so prominent that the wicked quite forget the power of God, either over individuals or the race. "The fool hath said in his heart, There is no God," but the pious finds peace in the love of God, and says, "I desire not to be free without Thee; let my will be thine and thine mine."

From this culminating point of revealed freedom and concealed law, to return to the silent mineral world. While the ungodly may fall into the delusion that he is entirely independent and free, we may take the mineral kingdom as the realm of entire dependence. Here we find no notions of freedom.

Freedom, in the moral sense, can be predicated only of men; the freedom, that is, of individual action. But a first suggestion, a dawn of this freedom, an evidence that God desires not a world of uniform puppets, but of free and independent creatures, is revealed in the

realm of nature, by this infinite variety of individuals, included under one and the same generic idea.

And this is true even of the crystals of the mineral kingdom. If we find a crystal prismatic, six-sided, and terminated at each end by a six-sided pyramid, we shall find the number of surfaces, and the angles, invariable; but there is an infinite variety in the size of the sides of the prism and pyramids. No crystal is like another, any more than a leaf. And it is this very variety in size which brings out the beautiful relations\* which do not appear from the model, because all its similar surfaces are of equal size.

The pupil's attention should be directed to these relations; and he will thus escape the mistaken idea that the natural crystals, instead of being really like the artificial model, are only attempts to be like it.

#### CONCLUSION.

It is my heartfelt wish that instruction in natural science, in former periods entirely neglected, may be increasingly given; but that it may be given in the right spirit and in the right way, so that the feelings, senses, and understandings of the young may be trained by it, from their early years, to a clear and ascertained comprehension of the creation—that other Holy Writ.

Any one imagining that such a course of training would enslave the senses, would most wrongfully confuse the right and holy exercise of the senses with their beastly abuse. For the natural philosopher uses his senses to the honor of God; and if he makes them serve base lusts and passions, he will by that means blunt and finally destroy their loftier susceptibilities. Therefore the teacher of natural history must, above all, urge upon his pupils the necessity of holiness; must contend against wicked lusts; must cultivate in them chaste and pure feelings, and childlike innocence of heart. He must seek to secure for them a consecration such as a divine would properly require in order to the pious study of the Holy Scriptures.

Such a devotional method of investigating the creation takes a more and more spiritual form. Mere mortal and bodily envelopes disappear: and immortal thoughts, rooted in God, awaken and stimulate to a higher life.

Thus also is developed the whole man. In the imaginative period of childhood, the material world, so rich in suggestions, surrounds and enchains him. His senses are being more and more developed, up to the period of adult life; they are the means for influencing his immortal soul. As he reaches the limit of earthly life, they begin to

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\* Such as the parallelism of the edges.

disappear; and we then complain that the powers of our eyes and ears are decaying. But let us not complain; let us herein recognize a token that in the man, his bodily senses sated with the phenomena of this earth, all things are spiritualizing and growing clearer; and that he is thus ripening and adapting himself for a higher life. All earthly things are ended; heaven is opening to us.

## NOTE.

AIDS FOR TEACHING MINERALOGY.\*—Besides the academical collection at Breslau, I made use in my instruction there of two smaller ones. The first consisted of only ten cases, containing specimens of all the important groups, and was intended for beginners; not only for their first inspection, but to afford some rough instruction in manipulation. *Fiat experimentum in re vili*; and accordingly this first collection was of little value; so that any little injury from unskillful handling could do but small harm.

After this the pupils came to the second collection, which occupied fifty-four cases. The specimens were small, but mostly fresh and clean. In going through with this collection I mentioned the names of groups; so that the pupils obtained an intelligent and actual list of names, and a general view of all the groups. Some details of colors and crystals were omitted.

It was only after this that I introduced them to the main collection, of three hundred and fifty-five cases. In going through this collection, the pupils might, as in the others, take each specimen in their hands, but must replace it in its paper box. Where it was useless or injurious to take them in the hands, as in examining the colors, for instance, it was of course not practiced. If the pupil has been made acquainted with the careful handling of the specimens, this method does not injure them. The collection is not intended merely for the teacher's scientific investigation, and still less for empty show; but principally for the instruction of the pupils; which can not be thoroughly done without permitting this handling. This purpose of the collection also decided me not to expend its income for expensive curiosities, or the novelties of the day, which are commonly of very small relative scientific value, and to the beginner of none whatever. In the place of one unimportant scrap of euclase can be bought a large number of instructive crystals of quartz, calcareous spar, &c. This principle is of course not applicable to collections which are not at all, or not entirely, intended for instruction, and which are sufficiently provided with all common specimens, and with incomes.

The chief collection was arranged generally on Werner's plan. According to this, the pupil had to go through the groups according to their separate peculiarities; first according to color, then transparency, then luster, crystallization, &c.

To afford the pupil a scientific gratification as soon as possible, I was accustomed to permit him, if capable, to take some single group, whose crystallization was easy, and go through with it; such as lead glance, fluor spar, &c. Thus he gained a first clear comprehension of the wondrous intelligence that pervades nature. If there were two pupils, perhaps not precisely equal, but of about equal capacity, I caused them to go through the collection together; which was beneficial to both. On the contrary, nothing is more harmful than to class together in this way pupils of unequal capacity. The more capable is impeded, or wearied, by the slow progress of him who is less so; and the latter again despairs

\* What is here said relates to my instructions in mineralogy at Breslau. No objection should be made respecting the richness of the collection there; for something can be done, even with smaller means.

at the rapidity of the former. I kept a diary, in which I daily entered briefly the work of each pupil, and how he had done it. This is of the greatest use in tracing and guiding their development. If the number of pupils was large, I found the following arrangement very convenient. I had all the more difficult crystals numbered, according to Haüy's plates, and the number lay with each one. The pupils, who had made sufficient progress, made a written description of the crystals, and laid their paper next to the described crystal. Thus only a very brief comparison of their description with my own was necessary. If they agreed, well; if not, the pupil studied the crystal further, until the descriptions coincided—unless, indeed, there had been an error on my part. Of such an occurrence I am never ashamed. I do not desire to be to my pupils an undisputed authority, but a teacher who understands his duty to them; and his first duty is love of truth.

## VIII. GEOMETRY.

[Translated from Raumer's "*History of Pedagogy*," for the American Journal of Education.]

THE school-days of the writer fell in the latter years of the last century. At that time the opinion prevailed that but few scholars had a talent for mathematics; an opinion, indeed, which seemed to be supported by the usually trifling results of mathematical instruction. Later defenders of this department of study, however, controverted this doctrine. It is not the pupils, they said, who are deficient in capacity for learning mathematics; it is the teachers, who have not the talent for teaching it. If the teachers would follow the proper method, they would learn that all boys have more or less capacity for mathematics.

When I remember how often even the more talented of my companions fell into despair from finding themselves, with the best inclination, unable to follow the instructions of their mathematical teacher, I find myself ready to agree with these defenders.

At the end of my university course, I went to Freiberg. At the mining school there, under the able instruction of Werner, I first became acquainted with crystallography, which had inexpressible attractions for me. The more I advanced in this study, and the greater my love of it, the more clearly I saw that crystallography was for me the right beginning, the introduction, to geometry. What if this is the case, I reflected, with others also; especially for students of a more receptive tendency, who are repelled by the rigors of logical demonstrations?

No one can quite escape from himself; and the reader will forgive me if, in the following views upon elementary instruction in geology, I exhibit too much of the course of my own studies in it. He can, however, abstract what is merely personal from what is applicable to others.

And now to my subject.

Formerly geometry and Euclid were synonymous terms. To study Euclid was to study geometry; he was the personification of geometry. His "*Elements*," a school-book for two thousand years, is much the oldest scientific school-book in the world. Composed three hundred years before Christ, for the Museum at Alexandria, it was exclusively



used in ancient times, and in modern times also, down to the eighteenth century.

To this imposing permanent eminence of Euclid's "*Elements*," for two thousand years, corresponds its great diffusion among civilized and even half-civilized nations. This is shown most strikingly by the great number of translations of it. It has been translated into Latin, German, French, English, Dutch, Danish, Swedish, Spanish, Hebrew, Arabic, Turkish, Persian, and Tartar.\*

With few exceptions, there is the utmost harmony in praise of Euclid. Let us hear the evidence of a few authors. Montücla, the historian, says, "Euclid, in his work, the best of all of its kind, collected together the elementary truths of geometry which had been discovered before him; and in such a wonderfully close connection that there is not a single proposition which does not stand in a necessary relation to those preceding and following it. In vain have various geometers, who disliked Euclid's arrangement, endeavored to break it up, without injuring the strength of his demonstrations. Their weak attempts have shown how difficult it is to substitute, for the succession of the ancient geometer, another as compact and skillful. This was the opinion of the celebrated Leibnitz, whose authority, in mathematical points, must have great weight; and Wolf, who has related this of him, confesses that he had in vain exerted himself to bring the truths of geometry into a completely methodical order, without admitting any undemonstrated proposition, or impairing the strength of the chain of proof. The English mathematicians, who seem to have displayed most skill in geometry, have always been of a similar opinion. In England, works seldom appear intended to facilitate the study of the sciences, but in fact impede them. There, Euclid is almost the only elementary work; and England is certainly not wanting in geometry."

The opinion of Lorenz agrees entirely with that of Montücla. In Euclid's works, he says, "Both teacher and pupil will alike find instruction and enjoyment. While the former may admire the skillful association and connection of his propositions, and the judgment with which his demonstrations are joined to each other and arranged in succession, the latter will enjoy the remarkable clearness and (in a certain sense) comprehensibility which he finds in him. But this ease of comprehension is not of that kind which is rhetorical rather than demonstrative, and this absolves from reflection and mental effort; such an ease, purchased at the expense of thoroughness, would be beneath the dignity of such a science as geometry. And more-

\* Montücla, I., 24. The list of editions and translations of Euclid's "*Elements*" occupies, in the fourth part of Fabricius' "*Bibliotheca Græca*," sixteen quarto pages.

over, Euclid himself was so penetrated with a sense of the derivation of the value of geometry, from the strict course pursued in its demonstrations, that he would not venture to promise even his king any other way to learn it than that laid down in the '*Elements*.'\* And in truth, the strictly scientific procedure, which omits nothing, but refers every thing to a few undeniable truths by a wise arrangement and concatenation of propositions, is the only one which can be of the greatest possible formal and material use; and authors or teachers, who lead their readers or pupils by any other route, do not act fairly either to them or to the science. Nor have the endeavors, which have at various times been made, to change Euclid's system, and sometimes to adopt another arrangement of his propositions, sometimes to substitute other proofs, ever gained any permanent success, but have soon fallen into oblivion. Geometry will not come into the so-called 'school method,' according to which every thing derived from one subject—a triangle, for instance—is to be taken up together. Its only rule of proceeding is to take up first what is to serve for the right understanding of what comes afterward."

Thus Lorenz considered Euclid's work unimprovable, both as a specimen of pure mathematics and as a class-book. Kartner thought the same. The more the manuals of geometry differ from Euclid, he said, the worse they are. And Montücla, after the paragraph which I have quoted, proceeds to detail the defects of the correctors of Euclid. Some, disregarding strictness of demonstration, have resorted to the method of inspection. Others have adopted the principle that they will not treat of any species of magnitude—of triangles, for instance—until they have fully discussed lines and angles. This last, Montücla calls a sort of childish affectation; and says that, to adhere to the proper geometrical strictness in this method, the number of demonstrations is increased as much as it would be by beginning with any thing of a compound nature, and yet so simple as not to require any succession of steps to arrive at it. And he adds: "I will even go further, and am not afraid to say that this affected arrangement restricts the mind, and accustoms it to a method which is quite inconsistent with any labors as a discoverer. It discovers a few truths with great effort, when it would be no harder to seize with one grasp the stem of which these truths are only the branches."†

\* "There is no royal road to geometry."

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<sup>†</sup> This reads as if Montücla had read many of the modern mathematical works. The abridgment and alteration of the "*Elements*" began as early as in the sixteenth century, and in the second half of the seventeenth the number of altered editions increased. Such were "*Eight books of Euclid's 'Elements,' arranged for the easier understanding, by Dechales,*" (*Euclid's elementorum libri octo, ad faciliorem captum accommodati auctore Dechales,*) 1660; and "*Euclid's 'Elements,' demonstrated in a new and compendious manner,*" (*Euclid's elementa nova methodo et compendiarie demonstrata,*) Sens, 1690, &c. Montücla may also have had

The opinions of the admirers of Euclid seem to agree in this: that the "*Elements*" constitute a whole, formed of many propositions, connected with each other in the firmest and most indissoluble connection, and that the order of the propositions can not be disturbed, because each is rendered possible by, and based upon, the preceding, and again serves to render possible and to found the next. As a purely mathematical work, and as a manual of instruction, Euclid's "*Elements*" are so excellent that all attempts to improve it have failed.

On reading these extracts it might be imagined that all the world was quite unanimous on the subject of instruction in geometry, and that all acknowledged as their one undoubted master this author, who has wielded for two thousand years the scepter of the realm of geometry. But far from it. We find strange inconsistencies prevailing on the subject, which are in the most diametrical opposition to these supposed opinions respecting Euclid. For how can we reconcile the discrepancy of finding the same men who see in Euclid such a closely knit, independent, and invariable succession of propositions, omitting, in instruction, whole books of the "*Elements*?" If they make use of the whole of the first book, this only proves that they consider that book as a complete and independent whole. Others go as far as through the sixth book, omitting, however, the second and fifth; and still others take the first, sixth, then the seventh, and then the eleventh and twelfth, entirely omitting the thirteenth. Can a book of the supposed character of this be treated in such a way, losing sometimes five, sometimes nine, and sometimes twelve of its thirteen books?

But how, I ask again, can we reconcile such treatment with such descriptions of Euclid's "*Elements*?" If we closely examine these descriptions, however, we shall see that, notwithstanding the lofty tone of their laudations, they still lack something. All praise the thorough and close connection of the book, but nothing more. It is as if, in representing a handsome man, he should be made only muscular and strong-boned; or, as if the only thing said in praise of Strasburg Minister should be that its stones were hewed most accurately, and most closely laid together. But is there nothing in the work of Euclid to admire except the masterly, artistic skill with which he built together so solidly his masonry, his mathematical proposi-

reference to the "*New Elements of Geometry*," (*Nouveaux élémens de géométrie*;) Paris, 1667. This was by Arnauld, of the celebrated school of Port-Royal. Lacroix says of it, "It is, as I believe, the first work in which the geometrical propositions were classed according to abstractions; the properties of lines being treated first, then those of surfaces, and then those of bodies." "*Essays on instruction generally and in mathematics in particular*," (*Essais sur l'enseignement en général et sur celui des mathématiques en particulier*;) By Lacroix, Paris, 1816, p. 289. Unfortunately, I have been unable to examine Arnauld's work. By Lacroix's description, it would seem to have been a forerunner of the Pestalozzian school.

tions? Is there not very much beauty in the scientific thought, so profound, so comprehensive, and so thoroughly diffused through every part of the work? The great Kepler was even inspired by this beauty, and was exceedingly enraged at Ramus' attack on Euclid, especially against the tenth book of the "*Elements*." Ramus said that he had never read any thing so confused and involved as that book; whereupon Kepler answers him thus: "If you had not thought the book more easily intelligible than it is, you would never have found fault with it for being obscure. It requires great labor, concentration, care, and special mental effort, before Euclid can be understood. \* \* \* You, who in this show yourself the patron of ignorance and vulgarity, may find fault with what you do not understand; but to me, who am an investigator into the causes of things, the road thereto only opened itself in this tenth book." And in another place he says, "By an ignorant decision this tenth book has been condemned not to be read; which, read and understood, may reveal the secrets of philosophy."

Kepler also further attacks Ramus, for not subscribing to the assertion of Proclus—although it is evidently true—that the ultimate design of Euclid's work, toward which all the propositions of all the books tend, was the discussion of the five regular bodies.\* And Ramus has put forth the singularly rash assertion that those five bodies are not forthcoming at the end of Euclid's "*Elements*." And by thus destroying the purpose of the work, as one might destroy the form of an edifice, there is nothing left except a formless heap of propositions.

"They seem to think," says Kepler, further, "that Euclid's work was called '*Elements*' (*στοιχεῖα*) because it affords a most various mass of materials for the treatment of all manner of magnitudes, and of such arts as are concerned with magnitudes. But it was rather called '*Elements*' from its form; because each subsequent proposition depends upon the preceding one, even to the last proposition of the last book, which can not dispense with any preceding one. Our modern constructors treat him as if he were a contractor for wood; as if Euclid had written his book to furnish materials to every body else, while he alone should go without any house."

Kepler's estimate differs materially from those first given, in that he does not only praise Euclid's skill in building firm and solid masonry, but the magnificence of his whole structure, from foundation-stone to ridge-pole. But later mathematicians have found fault with Proclus and Kepler for bringing into such prominence the five regular

\* Except those which treat of perfect numbers, Proclus says, in his commentary on the first book of Euclid, "Euclid belonged to the Platonic sect, and was familiar with that philosophy, and accordingly the whole of his elementary course looked forward to a consideration of the five 'beautiful bodies' of Plato."



bodies, and finding in them the ultimate object of Euclid's work. Even Montucla and Lorenz do this, although, as we have seen, they agree wholly with Kepler and others in finding that the chain of propositions in Euclid's "*Elements*" is a most perfect one, and that no proposition is stated which is not based upon a previous one. But it would have been impossible for Euclid to construct such a chain, had he not at the beginning of it seen clearly through its whole arrangement; had he not, during the first demonstration of the first book, had in his eye the last problem of the thirteenth. For no architect can lay the first foundation-stone of his building until he has clearly worked out his drawings for the whole.

The most superficial observation will show that Euclid begins with the simplest elements, and ends with the mathematical demonstration of solid bodies. He commences with defining the point, line, and surface; treats of plane geometry in the first six books, and comes to solids only in the eleventh. The first definition in this book, that of bodies, follows on after the former three. Lorenz gives us the reason why Euclid inserted between plane and solid geometry, that is, between the sixth and eleventh books, four other books. "The consideration of the regular figures and bodies," he says, "presupposes the doctrines laid down in the tenth book on the commensurability and incommensurability of magnitudes; and this again the arithmetical matter in the seventh, eighth, and ninth books."

The five regular solids, in point of beauty, stand altogether by themselves among all bodies; Plato calls them the "most beautiful bodies." We need not therefore wonder at Euclid for taking, as the crown of his work, the demonstration of their mathematical nature and of their relations to the most perfect of all forms, the sphere. In the eighteenth proposition of the thirteenth book, the last of the whole work, he demonstrates the problem. To find the sides of the five regular bodies, inscribed in a sphere. If this proposition was not the intended object, it is at least certainly the keystone of the structure.

Many things show that the demonstration of the five regular bodies, and of their relations to the cube, was really the final object of the "*Elements*." The Greeks, from their purely mathematical sense of beauty, and remarkable scientific tendencies, admired and studied this select pentade of bodies, which played a great part first in the Pythagorean and afterward in the Platonic school. But that Euclid, who seems to have been instructed by pupils of Plato, followed Pythagoras and Plato in this respect, if we are not convinced of it by the "*Elements*," is clearly enough shown by the quotation given from Proclus, and by the following ancient epigram:—



"The five chief solids of Plato, the Samian wise man invented,  
And as Pythagoras found them, so Plato taught us their meaning:  
And Euclid based upon them renown wide-spread and enduring."

This epigram from Psellus furnishes an indubitable confirmation of the views of Proclus and Kepler, respecting the arrangement and object of Euclid's great work.

I observed that, in former times, to study Euclid was to study geometry. This will serve as a sufficient apology for the space which I am bestowing upon the "*Elements*."

What was it, is the next inquiry, which caused the later mathematicians to vary so much from Euclid's course, and to omit whole books of his work? We will allow them to answer for themselves.

Of the first six books, and the eleventh and twelfth, Montücla remarks that they contain material which is universally necessary; and are to geometry what the alphabet is to reading and writing. The remaining books, he continues, have been considered less useful, since arithmetic has assumed a different shape, and since the theory of incommensurable magnitudes, and of the regular bodies, have had but few attractions for geometers. They are not however useless for persons with a real genius for mathematics. For these reasons, both Montücla and Lorenz recommend these five omitted books to mathematicians by profession. Of the tenth especially, Montücla says that it includes a theory of incommensurable bodies so profound that he doubts whether any geometer of our day would dare to follow Euclid through the obscure labyrinth. This observation is worth comparing with the expressions of Kepler and Ramus, above mentioned, on the same book.

Of the thirteenth book, which, with the two books of Hypsicles to follow it, treats of the regular solids, Montücla says, "Notwithstanding the small value of this book, an editor of Euclid, Foix,\* Count de Caudalle, added three more to it, in which he seems to have endeavored to discover every thing that could possibly be thought of respecting the reciprocal relations of the five regular solids. Otherwise, this theory of the regular solids may be compared with old mines, which are abandoned because they cost more than they produce. Geometers will find them at most worth considering as amusement for leisure, or as suggestive of some singular problem."

What would Kepler have said to this opinion?

As soon as we consider Euclid's work otherwise than as a single

\* François Foix, Count de Candalle, who died in 1594. In his ninety-second year. He founded a mathematical professorship at Bourdeaux, to be held by persons who should discover a new property of the five regular solids. The first edition of Candalle's Euclid, with a 16th book, appeared in 1566; the second, with 17th and 18th books, in 1578. It is Latin, "*Autors Franc. Flussate Candalla*."

whole, we see at once a necessity for modeling the eight "universally necessary" books into a new manual, of reorganizing it, and accommodating it to a new object. Distinguished mathematicians have undertaken such a remodeling, mostly including as many as possible of Euclid's propositions, and even of his groups of them, in their manuals. But how, it will be asked, can a work, so compactly organized as Euclid's, be capable of being taken to pieces, and its *disjecta membra* be arranged into a new manual? The explanation is as follows:—Although Euclid set out from one fixed point to reach another, yet he did not proceed in one straight line from one to the other, without any divergence. His single propositions, and still more the groups of them, have a species of independent existence, such that they can be recomposed into new manuals, whose arrangement is wholly different from that of Euclid.

"It is with the fabric of the thoughts  
As it is with a weaver's master-piece;  
Where one thread governs a thousand threads,  
And the shuttle flies backward and forward,  
And the threads fly unseen hither and thither,  
And one stroke affects a thousand combinations."

These expressions of Goethe's Mephistopheles are entirely applicable to Euclid's master-piece.

Shall we now reject these good modern manuals, and use in our mathematical studies the thirteen original books of the "*Elements*?" Even Kepler, the most thorough-going admirer of Euclid, would object to this. He defended and praised the "*Elements*" as a magnificent scientific work, but not as a school-book. He would never have recommended our gymnasiasts to study the tenth book, although he charged the celebrated Ramus with having fallen into a grievous error in thinking the book too easy, since it required intellectual exertion to understand it. Montücla, although he expressed himself strongly against a false, enervating, and unscientific mode of teaching mathematics, yet says that geometry must be made intelligible, and that many manuals have subserved this end, which he has gladly made use of in instructing; and that he would recommend the exclusive use of Euclid only to those of remarkable mathematical endowments.

But were Euclid's "*Elements*" originally a manual for beginners? Shall we compare the learned mathematicians who came from all countries to Alexandria to finish their studies under Euclid, Eratosthenes, or Hipparchus, with gymnasiasts sixteen years old? The Museum at Alexandria was at first, that is in Euclid's time, a mere association of learned men; and only afterward became an educational institu-

tion.\* Euclid therefore wrote his "*Elements*" for men who came to him already well experienced in mathematical knowledge and exercises. It was because the book was not a school-book that Euclid gave his answer to the king who required him to make geometry easier.

But what was the origin of the book?

The reader may perhaps apprehend that this question will lead me into historical obscurity, and obscure hypotheses. But there is no danger.

Montucla says that Euclid, in his book, collected such elementary truths of geometry as had been discovered before him. We know, of at least some of his problems, that they were known before Euclid; such, for instance, as the Pythagorean problems. But, nevertheless, Euclid remains entitled to the credit of having performed a service of incalculable value in the form of the most able and thoroughly artistic editing.

We have already stated the idea which guided him in this task of editing; it was to proceed from the simplest elements, by means of points, lines, and surfaces, to mathematical bodies, and finally to the most beautiful of them, the five regular bodies, and their relations to the cube.

But would geometrical studies, commenced at the very beginning on Euclid's principles, have led immediately to an elementary system such as his? Certainly not. If they would, what occasion would there be for so much admiration of them, and of calling them *Elements par excellence*, and their author "*the Elementarist*?"

No man would ever have begun with a point, a non-existent thing, (*ens non ens*), and from that proceeded to lines, surfaces, and lastly to solids. Solids would rather be the first objects considered; objects of the natural vision, and the pupil would have proceeded by abstracting from this total idea to the separate consideration of surfaces, which bound solids; lines, which bound surfaces; and lastly of points, which bound lines.

After having proceeded to this ultimate abstraction, to the very elements themselves of the study, Euclid worked out his elementary system as a retrograde course; a reconstruction of solids from their elements. And this reconstruction could only be effected by the aid of precise knowledge and intelligent technical skill; of a full understanding of the laws and relations of figures, solids, &c.

Acute Greek intellects, investigating solids and figures, and subjecting them to actual vision, would of course discover many of their laws at once, and readily. Others, however, could not be perceived by intuition, but could be disclosed to the understanding only at a

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\* See Klippel, on the Alexandrian Museum, 114, 228.

inter period.\* In examining this cube, for instance, it would appear at once that its sides were equilateral and equiangular; and that one of its horizontal sides was bounded by four vertical ones. But that its edge, diagonal of a side, and axis are to each other as  $\sqrt{1} : \sqrt{2} : \sqrt{3}$  could not be perceived with the bodily eye, but appears by the help of the Pythagorean problem.

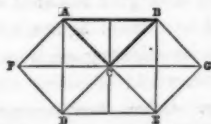
The demonstrations, as is sufficiently evident, must have begun with such as were concrete, simple, and visible, and proceeded to such as were more comprehensive, abstract, and beyond the scope of the senses. For instance, the application of the Pythagorean problem to all right-angled triangles would scarcely have been undertaken at the beginning. But in the case of isosceles right-angled triangles, inspection would show, by a very simple demonstration, that the squares of the sides were together equal to the square of the hypotenuse.† If this were proved, the question was then easily suggested, Is it true of all right-angled triangles? If a square were divided by a diagonal into two triangles, it was evident that each of them contained one right angle and two half right angles, the sum of the three being two right angles; and then the question would naturally occur, Is this true of all triangles?

In the same manner it would be necessary to proceed from the simplest and most regular solids and figures to the more complicated and less regular; from those most easily seen by the eye to the more abstract, requiring the use, not of the senses, but of the reason. When at last the most comprehensive demonstration and definition had been learned, there would be no further mention of the previous concrete cases, which had been an introduction to the study of the more abstract ones, but the cases to consider would now be those involved in the definition and demonstration last found.

It has repeatedly been observed that the teacher of a science must adhere to its proper course of development, and must in his instructions follow it more or less strictly. Every pupil ought once to follow this path, which its first discoverers and investigators worked out after

\* See my "A B C-Book of Crystallography," (*A B C-Buch der Krystallkunde*), pp. IX., XI., XXIII., and 164; and Harnisch, "Manual of the German Common School System," (*Handbuch über das deutsche Volksschulwesen*.) 1st ed., 1820, p. 232.

† The demonstration may be somewhat as follows:—



A B C, isosceles right-angled triangle. A B D E, the square of its hypotenuse, contains eight small triangles, and the squares on its sides together contain also eight, and all of these small triangles are of the same size and shape.

so many and long-enduring errors, but which the present pupils, with their teacher's aid, now find out in a shorter time, and with certainty.

According to these principles, to which I subscribe, I consider it natural to begin teaching geometry with treating of solids, with which it is highly probable that the actual development of the science began; and to proceed from that point, by abstraction, to the elements. It is here that Euclid's method should be adopted, and that we should proceed by demonstrations, from the elements up to solids. In the former course, it is instruction that leads, and reason silently follows; in the latter, the reason speaks, and the intuition must place faith in it.

Many mathematicians are now agreed that Euclid's demonstrative course of instruction should be preceded by an introduction of an intuitional character. In the theory of forms brought forward by Pestalozzi and his school, in particular, was discovered a preparatory course in geometry, in which intuition was the chief actor, as is the reason in geometry proper.\*

Still, however, the beginning was not made with solids, but, in accordance with a method of elementarizing which was pushed even to caricature, with points—unmeasurable, dimensionless points. Lines come next, and were taught in innumerable and aimless combinations. Lastly, surfaces were discussed; for of solids Schmid's well-known Theory of Form, the predecessor of many more, scarcely spoke at all, and what little was said was not worth mentioning.†

The necessity was afterward felt of beginning with a solid—the cube, for instance; but merely with the design of showing from it the process of abstraction by which to proceed from the solid to the point. As soon as this had been briefly done, they then commonly proceeded to the combination of points, lines, &c., and to other operations, as were just alluded to. How important soever this theory of form may seem to me, and however much I may honor the intelligence, industry, and effort with which this new course of discipline was worked out by able pedagogues, still I can not possibly recognize the method which they followed as the right one.‡

What I would recommend is, that instruction in geometry should begin, not with such a brief analysis of one or another solid into its geometrical elements, but with a continued study, at some length, of many mathematical solids. And now, if solids are to be both the beginning and the end of the elementary study of geometry, the

\* Part 2, p. 101.

† Diesterweg "Guide," (*Wegweiser.*) Second edition, part 2, p. 188, &c.

‡ I entirely agree with the acute and able judgment passed by Curtmann on the study of Form in common schools, and on Froebel's "eccentric proposal to use geometrical combinations as a principal amusement for children." See Curtmann's "*School and Life*," (*Die Schule und das Leben*), p. 62.

question naturally comes up, What bodies? Shall they be those of which every stereometry treats—the prism, pyramid, sphere, cone, and cylinder? Shall it be the five regular solids?

The opinion of Montúcla, already given on this point, might perhaps alarm us, even if inclined toward an affirmative. He compares the theory of the five regular bodies to ancient mines, which are neglected because they cost more than they produce. "Geometers," he continues, "will use them at most for a leisure amusement, or as suggestive of some singular problem." But such old mining works are opened again, and afford great profits; and the merest leisure sometimes is the occasion of solemn earnestness. Of many of the solids which the ancient mathematicians constructed, with scientific geometrical skill,\* the originals have been found in nature in our own times; and, besides these, an innumerable multitude of other beautiful forms, in which are revealed laws of which no mathematician ever dreamed.

It is mineralogy which has opened to us this new geometrical world—the world of crystallography. With this I first became acquainted, as I have already mentioned, in Werner's school, at Freiberg. When I afterward came to Yverdun, in 1809, and made myself acquainted with Schmid's Theory of Forms, this latter appeared to me the most uncouth of all possible opposites of crystallography.

This theory of forms consisted of endless and illimitable combinations. The object seemed to be to find at how many points a line could be intersected; but no reference was made to the question whether the figures resulting from such combinations were beautiful or ugly. But, in the absence of a sense of mathematical beauty, great caution must be used in approving a course of mathematical instruction which consists principally of mathematical intuitions. Nothing of any value, as I have mentioned, was said of solids. Every thing seemed designed to keep the boys in incessant, intense, and even overstrained productive activity, without any care whether the product was of any geometrical value. A formal result, it might be said, was the chief thing sought.

But how diametrically opposite was the study of crystallography at Freiberg to this unnatural and endless production of mathematical misconceptions! It began with a silent ocular investigation of the wonderfully beautiful crystals themselves; works of Him who is the "Master of all beauty." A presentiment of unfathomable, divine geometry came upon us; and how great was our pleasure as we gradually became acquainted with the laws of the various individual forms,

\* Including several of the thirteen Archimedean solids.



and their relations. Nobody thought of any special formal usefulness in his study of crystals; it would have seemed almost a blasphemy to us had any one told us to use the crystals for our education. We quite forgot ourselves in the profundity and unfathomable wealth of our subject; and this beneficial carelessness seemed to us a much greater formal benefit than could have been obtained by any restless running and hunting after such a benefit.

The opposite impressions thus received at Freiberg and Yverdon are indelibly impressed upon my mind. And I readily admit that all my inclinations drew me toward a quiet investigation of God's works; an inward life from which my actual knowledge should gradually grow. In proportion as I have experienced the blessing of this peaceful mode of activity, I find an incessant, restless, overstrained activity more repulsive to me, and I am frightened at the pedagogical imperative mood, "Never stand still!" It is to me as if all beautiful Sundays and their sacred rest were entirely abrogated, and as if I were forced to hasten forward, restlessly and forever, without once delaying for peaceful contemplation, though the road should lead through the summer of paradise.

But to return to my subject.

When, twenty-four years ago, I wrote my "*Attempt at an A B C-Book of Crystallography*," (*Versuch eines A B C-Buch der Krystallkunde*), I remembered, while employed on that common ground of mathematics and mineralogy, Schmid's Theory of Forms, and expressed the hope that a scientific crystallography, proceeding according to the laws of nature, might accomplish, in a regular manner and with a clear purpose, what the theory of forms of Pestalozzi's disciples had endeavored to do without regularity or definite purpose.

I was convinced that such a connection with the subject of crystals must give to the treatment of the theory of forms a character entirely new, and entirely opposite to that previously usual. Wherever beginners were required to practice this incessant combination and production, they would now be employed in becoming familiar with natural crystals and models of them. They should not be confined exclusively to models, lest they should fall into the error of supposing themselves to have to do only with human productions; and of imagining that there are no other mathematics except those of man. Natural crystals lead the pupil to a much profounder source of mathematical knowledge; to the same source from which Plato, Euclid, and Kepler drank.\*

\* Mohl's valuable work on the forms of grains of pollen shows that among them are several mathematical ones; as octahedrons, tetrahedrons, cubes, and pentagonal dodecahedrons. (Mohl's Contributions, Plate I., 3; Pl. II., 30, 34, 35; Pl. VI., 17, 18; &c.) Schkuhr had already described dodecahedrons and icosahedrons. Thus mathematical forms are found also in the mathematical world.



I will here give some details to show that proper instruction in crystallography will serve the same purpose which was sought by the theory of forms. Every solid, I would first say,\* fills a certain space, and the questions to ask respecting it are,

1. What is the form of the solid (or of the space which it fills?)
2. What is its magnitude, (or the magnitude of the space which it fills?)

Similar questions arise respecting limited superficies. If now we compare two solids, or two surfaces, they may be either,

a. Alike in form and magnitude, or congruent; as, for instance, two squares or cubes of equal size. The squares will cover each other, the cubes would fill the same mold.

b. Alike in form but unlike in magnitude, or similar; as two squares or cubes of different sizes. Of two similar but unequal solids, the smaller, A, may be compared with the larger, B, in a decreasing proportion. If any line of A equals, for instance, one-half of the corresponding line of B, all the other lines of A are to the corresponding ones of B in the same proportion.

c. Unlike in form but alike in magnitude, or equal; as a square and a rhomboid of equal base and height; a square prism and a crystal of garnet, where the side of an end of the prism equals the short diagonal of one of the rhombic surfaces of the crystal, and a side edge of the prism is twice as long as the same diagonal.

d. Unlike in form and magnitude.

The theory of form, as its name indicates, is chiefly concerned with the forms of bodies and surfaces; and so is crystallography. The latter deals only incidentally with the materials of bodies, and treats chiefly of the shape of single crystals, and the comparison of different ones, with the design of discovering whether they vary from each other or not.

I was occupied many years with elementary instruction in crystallography; and from these labors resulted the "*Attempt at an A B C-Book of Crystallography*," which I have already mentioned.

In the course of this instruction I found by experience how much not only older persons but even boys of ten or twelve are attracted by these beautiful mathematical bodies, and how firmly their forms were impressed on their minds; so firmly that the more skillful of them could go accurately through the successive modifications of related forms, without using any models.

Any one who has studied elementary crystallography, as an introduction to geometry, will find this course a great assistance to the understanding of the ancient Greek geometers. He will not ask, as

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\* See my "*A B C-Book of Crystallography*," p. 162.

the modern mathematicians do, what is the use of investigating the regular solids? And he will find himself much better able to study in the method of the ancients; a method the neglect of which has been lamented by Fermat, Newton, and Montucla. A later writer has described this method as one which speaks to the eyes and the understanding, by figures and copious demonstrations. And he laments that the more recent mathematicians have allowed themselves to be carried to a harmful extreme by the extraordinary facility of the algebraic analysis. "In fact," he says, "the ancient method had certain advantages, which must be conceded to it by any person only even moderately acquainted with it. It was always lucid, and enlightened while it convinced; instead of which, the algebraic analysis constrains the understanding to assent, without informing it. In the ancient method, every step is seen; and not a single link of the connection between the principle and its furthest consequence escapes the mind. In the algebraic analysis, on the other hand, all the intermediate members of the process are in a manner left out; and we merely feel convinced in consequence of the adherence to rule which we know is observed in the mechanism of the operations in which great part of the solution consists."\*

Speaking pedagogically, no one can doubt, after the descriptions thus given, whether the geometrical method of the ancients has the advantage, in regard to form, over the analytical one of the moderns. I have shown elsewhere how harmful it is to give the boys formulas, by whose aid they can easily reckon out what they ought to discover by actual intuition; as in the case where a pupil, who scarcely knows how many surfaces, edges, and angles a cube has, computes instantly by a formula, by a mere subtraction, what is the number of angles of a body having 182 sides and 540 edges, without having the least actual knowledge of such a body.

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\* An instance of the predominance of the analytic method is found in the "*Mécanique Céleste*" of Lagrange, which appeared in 1788. In this, the author says, "The reader will find no drawings in this work. In the method which I have here employed, neither constructions nor any other geometrical nor mechanical appliances are needed; nothing but purely algebraical operations."

## IX. ARITHMETIC.

[Translated from Raumer's "History of Pedagogy," for the American Journal of Education.]

THE difference between ancient and modern methods of instruction is remarkably clear in the case of arithmetic.

By way of describing the ancient method, I will cite portions of one of the oldest and best reputed of German school-books—the "*Elementa Arithmetices*" of George Peurbach.\* This author was, in his time, the greatest mathematician in Germany; and one of his pupils was the great Regiomontanus.†

Peurbach's arithmetic began with the consideration of numbers. "These," he says, "are divided by mathematicians into three kinds: into digits, which are smaller than ten; articles, (*articuli*), which can be divided by ten without a remainder; and composite numbers, consisting of a digit and an integer. Unity is however no number, but the rudiment of all numbers; it is to number what a point is to a line. In arithmetic it is usual, after the manner of the Arabs, who first invented it, to work from right to left. Every figure, when standing in the first place at the right hand, has its own primitive value; that in the second place has two times its primitive value, in the third place a hundred times, in the fourth one thousand times, and so on."

The second chapter is on addition. "To unite several numbers in one, write them so that all the figures of the first place (units) shall stand under each other, and in like manner of the second place, and so on. Having arranged them in this way, draw a line under them, and then begin the work at the right hand by adding together all the numbers of the right column. The sum resulting from this

\* "*Elementa of Arithmetic. An algorithm of whole numbers, fractions, common rules, and proportions.* By George Peurbach. All recently edited with remarkable faithfulness and diligence. 1536. With preface by Philip Melancthon." (*Elementa Arithmetices. Algorithmus de numeris integris, fractis, regulis communibus, et de proportionibus. Autore Georgio Peurbachio. Omnia recens in lucem edita fide et diligentia singulari.* An. 1536. Cum prefatione Phil. Melancthi.) Peurbach was born in 1423, and died 1461.

† "This philosophy of celestial things was almost born again in Vienna under the auspices of Peurbach. This whole department of learning, (astronomy,) after having lain in dishonor for centuries, has of late flourished anew in Germany, under the restoring hands of two men, Peurbach and Regiomontanus. Their very achievements testify that these two heroes were raised up, for the promotion of that branch of learning, by some wonderful power of divine appointment." This is Melancthon's opinion, as given in his preface to the "*Sphæra*" of Sacro Bosco. Comp. Montúcla, "*History of Mathematics*," part 3, book 2; also Schubert's "*Peurbach*," &c.

addition will be either a unit, or an article, or a composite number. If a unit, write it under the line, immediately under the units; if an article, write a cipher\* there, and add the number of tens to the second column; if a composite number, write the units under the units, and add the tens to the second column. Proceed in the same manner with the second column, but do not forget to add in the tens resulting from the addition of the first column. When you have finished the second column, proceed to the third, fourth, &c. When you add up the last column, you can, if the addition gives tens, set them down at once."

The instruction in the other ground rules is given quite in the same way; as is the mode of proving examples. For multiplication he especially recommends the multiplication table. "If you have not thoroughly mastered this," he says, "I assure you that, if you do not take pains to learn it, you will make no progress in arithmetic."

This may suffice to describe the style of Peurbach's arithmetic, four hundred years old; the same method has prevailed even down to our own times. It is in this study, as I have said, that the difference comes out most clearly between the ancient and modern styles of instruction. To show this in a single point, let the reader compare Peurbach's recommendation about the multiplication table with an expression of Diesterweg's. The latter says, "The ancient teachers made the famous multiplication table the basis of all arithmetic. They made it the beginning of the study, printed it in the primer, and impressed it mechanically upon the children's memories. Nowadays it plays a more subordinate part; and this single fact may show how far we have left the worthy ancients behind us in arithmetical instruction. \* \* \* The multiplication table, with us, comes after the addition and subtraction tables, and before the division table; that is all."†

The following observations will state the difference between the ancient and modern methods of instruction in arithmetic.

The object of the ancient method was to enable the children to

\* *Cifram* or *Zyphram*; others say *figura nihili*, or *circulus*; as Hudalrichus Regius, in his "*Epitome Arithmetices*," (1536,) p. 41. Maximus Planudes (in the 14th century) has *ῥηφρα* for naught. Fibonacci, a Pisan, wrote in 1202 a "*Treatise on the Abacus*," (*Tractatus de Abaco*.) In which he relates that during his travels he learned the Indian art of arithmetic, by which with ten figures all numbers can be written, (*Cum his . . . figuris, et cum signo 0, quod Arabice Zephirus appellatur.*) (Whewell, i, 190.) Lichtenberg (6, 273) says, "Zero (naught) is derived from *cyphra* and *cypher*, the Latin and English for naught; and these from the Hebrew *sephar*, to count." Menage says, "*Chiffre*.—The Spaniards first took this word from the Arabs. It was *Zefro*." Spaniards change *f* into *h*; hence, *Zefro*, *Zehro*, *Zero*. When did the German *Ziffer* receive its present meaning?

† In the preface to his "*Handbuch*," Diesterweg says, however, "Any one desirous of multiplying larger numbers together in his head must know the multiplication table by heart. The inferior grade of computation must be facilitated by this great means of assistance, in order to avoid difficulties in the higher grade." This agrees with Peurbach.

add, subtract, &c.; an art of arithmetic was sought, not an understanding of it, a theory of it. As a foreman shows his apprentice how to do his work by categorical imperatives, First do this and then do that, without any whys or wherefores, just so was arithmetic taught, without any effort on the part of the teacher to communicate to the scholar an understanding of the things he did. Nothing was thought of except skill in operating, which was gained by much practice. This mode of instruction was made more natural by the fact that only written arithmetic was taught.

Pestalozzi and his school opposed this method of instruction, and called it mechanical, and unworthy of a thinking being. The child, they said, must know what he is doing; and should not merely perform operations without any understanding of them, according to the teacher's directions. Understanding is the chief object; the training of the intellect as a properly human discipline, without any relation to future practical life. A few of them claimed that, if the scholar acquired nothing but this intelligent knowledge, if it was done in the proper methodical way, his practical skill would come of itself; that, by the knowing about his art in the proper manner, a man becomes a master of it.\*

The ancient method, which kept the pupils at unwearied drilling, trained skillful and certain mechanical laborers. The pupils operated according to traditional rules, which they did not understand, and which even the teachers themselves very likely did not understand, any more than the master-mason, when showing an apprentice how to make a right angle with a string divided by two knots into lengths of three, four, and five feet, can also explain to him the Pythagorean problem.

But although by this method the scholar was excellently well prepared for many computations, which he will have occasion for in practical life, yet he will be quite at a loss how to help himself whenever a case shall come up to which he can not apply his rule exactly as he learned to use it. This will appear when he enters upon Algebra; even in undertaking to use letters instead of figures in his much-practiced Rule of Three. Algebra requires every where a clear, abstract knowledge of arithmetical operations and relations—a just distinguishing between the known and unknown quantities which are to be sought or eliminated, and an understanding of the mode of using these in the most varying cases. But all this will be entirely wanting to the mere routinist, whose thinking is done by traditional rules founded on experience. He would in like manner

\* An error which they subsequently perceived; and afterward labored at a union of knowledge and practical skill.

find himself unprovided with an intelligent method of mental arithmetic, such as requires independent work by the scholar; for what this school called mental arithmetic was nothing but an inward display of figures, and an inward operation performed upon them.

Three chief adversaries appeared against the ancient mechanical arithmetic, of whom I have just mentioned two.

The first, namely, was Algebra.\* This represented special cases in a universal way; and treated special procedures in arithmetic in such a manner that the course of the proceeding—the law according to which the required quantities were found—was clearly expressed. Letters were every where used for numbers—undetermined numbers; for any letter might stand for all possible numbers.†

Thus, in algebra, the understanding and investigating of universal relations and laws appeared as opposed to mere computations, practiced according to a rule not understood, and aiming only at mechanical facility.

In like manner arose the true method of mental arithmetic, which has become so prominent, especially in later and the latest times, in the place of the usual operating upon pictures of figures within the mind. It was seen that upon this intelligent mental arithmetic must be based a right understanding of the mechanical processes of arithmetic. This was, among other reasons, because the mental method obliged the pupil to perform many operations in an order quite different, and even entirely opposed, to that used in written arithmetic.

The third adversary of the old method of arithmetic was the intuition so prominently urged by Pestalozzi and his school. While algebra took the arithmetical laws out of concrete numbers, and established them as ideas, abstractly, Pestalozzi, on the contrary, sought for means of that intuitional instruction which must precede all reckoning with numbers, and without which that reckoning must be without any proper foundation. As algebra developed itself out of concrete arithmetic, so was the idea of number itself, again, to be deduced from the bodily examination of numerable objects of various kinds. "The mother," says Pestalozzi, "should put before the child, on the table, peas, pebbles, chips, &c., to count; and should say, on showing him the pea, &c., not 'This is one,' but 'This is one *pea*,' &c." And he proceeds to say, "Wh'le the mother is thus teaching the child to recognize and name different objects, as peas, pebbles, &c., as being one, two, three, &c., it follows, by the method in which she shows and names them to the child, that the words one, two, three, &c., remain always the same; while the words pea, pebble,

\* I use this word, like Euler, Montucla, Kries, &c., in its wider sense.

† Kries' "*Manual of Pure Mathematics*," (*Lehrbuch der Reinen Mathematik*,") p. 72, &c.

&c., always change, as the nature of the object changes which is thus used; and by this permanence of the one, and constant change of the other, there will be established in the child's mind the abstract idea of number; that is, a definite consciousness of the relations of more or fewer, independently of the objects which are set before him as being more or fewer.\*

Thus far Pestalozzi adheres to the method in which arithmetic had always been begun, in a manner strictly accordant with nature. Counting had been taught by beans, &c., and especially on the fingers. "You can count that on your fingers" is an old proverb.

He now, however, proceeds further, to artificial school-apparatus for intuition. He and his fellow-teacher, Krüsi, prepared some "intuitional tables" for this purpose. In the first, the numbers from one to ten are separated by marks: a I in the upper horizontal row, II below it, and so on, down to ten such marks for ten. And 175 pages were occupied with exercises to be taught upon these marks.

The second intuitional table is in the form of a square, divided into ten times ten small squares. The ten squares in the upper horizontal row are not divided; those in the second are halved by a perpendicular line; those of the third are divided into thirds by two such lines; and so on, to the last, which is divided into ten parts by nine perpendicular lines.

The second intuitional table is properly followed by the third in the second part of the "*Intuitional Theory*." It is a large square, divided into ten rows of ten small squares. The first of the first horizontal row is undivided, the second halved by a horizontal line, the third divided into three parts by two horizontal lines, and so on to the tenth. The ten squares of the first perpendicular row are divided in the same way by perpendicular lines, and the other squares are divided both by perpendicular and horizontal lines, (corresponding with a multiplication table,) according to their order, in a perpendicular and a horizontal row. Thus the hundredth small square, diagonally opposite that which is not divided at all, is thus divided into ten times the smaller squares, of which each is a thousandth of the large one.

The second table, preceding this, consists of thirty-six pairs of parallel lines, equal in length but divided differently. The pair A and B, for instance, are divided by points into six equal parts; but, besides this, A is divided into halves and B into thirds; the former into twice three-sixths, and the latter into three times two-sixths.

\* Pestalozzi, preface to part 2 of his "*Intuitional Theory of the Relations of Numbers*," (*Anschauungslehre der Zahlenverhältnisse*.)



For the method of using these intuitional tables in instruction, I refer to Pestalozzi's "*Elementary Books*," and to Von Türk's "*Letters from Munchen-Buchsee*."\* I shall here only offer a few observations on them.

By means of these tables it was sought to elucidate to the children the four ground rules, fractions, and the rule of three, even algebraically. In particular, every number was considered as composed of ones, and was referred to ones as its elementary parts. And this was done not only at first to facilitate a clear understanding, but in subsequent parts of arithmetic, and even to a wearisome extent. Instead of seven, "seven times one" was used; and again, "One is the seventh part of seven." And thus were composed so many strange, wordy problems; as "Three times half of two, and six times the seventh part of seven, are how many times the fourth part of four?"†

Pestalozzi should undoubtedly have the credit of calling attention, by his "*Elementary Books*," to the visual element of arithmetic, which had previously been almost entirely neglected in the schools. Since that time, this element has been much used for primary instruction, and as a means of laying a foundation by the use of the senses for subsequent insight. But at present, most of the arithmetics of the Pestalozzian school vary much from this excessive use of the senses, as is shown by their books of examples.

It is clear that there are limits to the use of the intuitional faculties. Pestalozzi exceeded these in various ways; as in the line divided into ninety parts, and a square divided into ninety rectangles, which we find in his "*Elementary Books*." What eye would distinguish, in his third table, between the square divided into nine times ten rectangles, and that divided into ten times ten, next after it?

The necessity of actual intuition at the beginning of arithmetic also led Pestalozzi into an error. "When," he says,‡ "we learn merely by rote that three and four are seven, and then proceed upon this seven just as if we actually knew that three and four were equal to seven, we deceive ourselves, and the inner truth of this seven is not in us; for we have not that foundation in the evidence of our senses which only can make the empty word a truth to us."

But granting that I can inwardly see the picture of the statement that  $3+4=7$  in marks, peas, &c., can I have the same sort of visible basis within me when I would add  $59+76=135$ ; or, rather,  $3567+4739=8306$ ? Are all such operations as these last then destitute of intuition? that is, are they all actually empty words and unintelligent labor?

\* Pl. 1, p. 16, &c., p. 51, &c. † Ib., p. 58. ‡ "*How Gertrude Teaches her Children*."

These considerations may enable us to arrive at a correct estimate and application of the use of intuition. It is intended to assist the work of the understanding, by representations which the eye will easily take in and the mind will easily retain; and to facilitate the comprehension of numbers and their relations to each other, and afterward the methods of operating in agreement with the ideas thus received. If the intuitional powers have fulfilled their task, and if a correct understanding has been attained in the small matters at first studied, the pupil may boldly proceed to greater numbers—to numbers so great that intuition can not deal with them at all. Thus, the scholar's intuition on the subject of fractions may carry him, for instance, at furthest, to the subdivision of a line into twenty-four equal parts, and to their designation in their various different ways, as  $2 \times 12$ ;  $3 \times 8$ ;  $4 \times 6$ ;  $6 \times 4$ ;  $8 \times 3$ ; and  $12 \times 2$ . By means of such a line as this a clear idea can be formed of the mutual relations of fractions of different denominators; as, for instance, that  $\frac{1}{2} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2} = \frac{1}{2}$  or that  $\frac{1}{2} = \frac{1}{2}$ , &c. But the eye is not capable of taking in Pestalozzi's line subdivided into ten times ten portions. In this case the understanding has to assist the eye much more than the eye the understanding.

We have seen that instruction in arithmetic has always commenced with visual intuition, and that Pestalozzi endeavored to erect this natural proceeding into a method—a system which should proceed from a right beginning to a right end, in a right manner. With this design he published his "*Elementary Books*" and Intuitional Tables. And yet, the numerous and even excessive exercises upon these tables had really nothing whatever to do with arithmetic. After the pupil had completed the whole of these exercises, without even knowing the Arabic figures, these last may be made known to him "in the usual manner,"\* and their value as dependent on their places. After this comes operations with figures.

But my experience has been, that it is precisely for the understanding of these operations that intuition is most necessary. The tiresome, inanimate marks of the Pestalozzian tables seem to me peculiarly unsuitable for children, who rather require colored or shining things, such as will easily impress their fancy. And again, if these things are to open the road to operations with figures, they must represent not mere units, but must be adapted to the decimal system—the system of Arabic figures. I made use of counters; which, if properly managed, will afford much assistance.†

A difference must be made between numbers and figures. The

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\* Türk, 101. † See Appendix III. on this point.

same number can be indicated by very different figures; as, for instance,

One.	Five.	Ten.	Hundred.	Thousand.
$\alpha$	$\epsilon$	$\iota$	$\rho$	$\alpha$
I	V	X	C	M
1	5	10	100	1000

To comprehend the wondrous and almost magic power of the so-called Arabic figures, it is only necessary to work the same example with these and with the Greek or Roman figures.\* The example in the note is very simple; the difference will appear more evidently on trying even a very moderately large example in "long division" with the Roman figures. And if there is such a difference even in the elementary part of arithmetic, how much greater will it be in more complicated work!

In later times this written arithmetic, so far from being an object of admiration, has, on the contrary, been so violently attacked that mental arithmetic has assumed a remarkable predominance over it. A teacher wrote a little work, entitled "*Head or Thought-Arithmetic*;" in which written arithmetic was almost synonymous with "mindless arithmetic." This reaction, however, was quite natural. We have already seen that in early times pupils were taught only the operations with figures; that they only learned to juggle according to the rules given them, and did not even know how they arrived at the results of their operations. Schiller objects to certain authors that "language did their thinking and wrote their poetry for them." In like manner the wonderful decimal system thought for these scholars, if not even for their teachers themselves.

It is at present a source of satisfaction, that by mental arithmetic this juggling business is to be brought to an end. And for certainty's sake it is strictly forbidden to perform the mental operations with the help of imaginary figures, this being really identical with written arithmetic.

But a proper regard should be paid to the latter; and it should be remembered how soon we come to the limits of mental arithmetical operations where we become obliged to use figures, letters, or visible representatives of some kind. Many persons are inclined to exceed these limits, even by force; and imagine that by the most complicated examples in mental arithmetic they can develop the scholar's capacity to the utmost extent. But a skillful mathematician of

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(A) 432/864(2) (B) CCCCXXXII)DCCCXXXXXIV,II

This is but a trivial example of the magic of the decimal system; 100,000 florins are how many each to ten men? Ans.—10,000 florins. The fault is our own if we do not admire such a system.

Berlin has asserted, in contradiction to these, that "mental arithmetic is not actually an exercise of the understanding, because it requires the use of the memory exclusively." No one can deny this statement as to the use of the memory; nor that those virtuosos, who are accustomed to exhibit their skill in mental arithmetic, are usually of very trifling capacity in other matters.

The correct belief is that of those who, like Diesterweg and Stern, have opposed not merely the earlier mechanical written arithmetic, but have also sought to penetrate the essential principles of the mechanism of it, and to make their pupils understand, so that the latter might make use of written arithmetic with the same clear comprehension as mental arithmetic.

It was seen that the difference between mental and written arithmetic consisted chiefly in the abbreviations which are used in the latter. But the pupil readily apprehends the briefer processes of the latter, when explained to him in full by the teacher.\* For arithmetical instruction is concerned with the explanation of abbreviations, from the elements up to the infinitesimal calculus; with marks and formulas invented by the most penetrating mathematical minds. To the pupil these appear to be mere magic marks and formulas, until he is made acquainted with the mode of their production. In the higher grades of the study, however, the pupil may be accustomed to the purely mechanical use of many algebraical formulas and of logarithms, in the same way in which the mechanical use of arithmetical figures used to be taught.

The question how far arithmetical instruction should be carried in one and another school, is in some cases easy, and in others difficult, to answer.

For elementary schools, Diesterweg was right in saying, "Every child should here go so far in arithmetic as to be able to solve readily in writing or mentally such problems as he will meet in common life." In the common schools there should be no prominent efforts after isolated distinction in any department.

It is much more difficult to fix a limit for arithmetical instruction in the burgher schools, because these schools are of very various characters, according to circumstances. The general future occupation of the children who attend the burgher schools has particularly great influence in this respect.

By examining a large number of school programmes, from various parts of Germany, I have found that at present most of the gymnasia proceed to about the same extent in mathematical instruction.

The Prussian ordinance on examinations, of 1834, requires "Thor-

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\* For an example see Appendix IV.

oughness in the theory of the powers and roots in progressions, and also in the elements of algebra and geometry,\* plane and solid; knowledge of the theory of combinations and the binomial theorem; facility in managing equations of the first and second degree, and in the use of logarithms; a practiced knowledge of plane trigonometry; and especially a clear comprehension of the connection of all the propositions in the whole system of lessons."

A hundred years before, in a Prussian ordinance of 1735, no methodical knowledge was required, even of gymnasium graduates.†

On the question whether the gymnasium course should also include conic sections and spherical trigonometry, opinions differ. Only the teachers of two gymnasia declare for instruction in the infinitesimal calculus, while others are decidedly opposed to it, and certainly with entire propriety. Pupils of distinguished mathematical talents should follow their mathematical course further, at the university or at the polytechnic school.‡

There is no study where so urgent a warning is needed against the overstimulus of the scholars as in mathematics. It is known that, in Pestalozzi's institution, Schmid's influence caused this department to occupy a disproportionate space, and pushed every thing else into the background. The children were also experimented on; and were encouraged to exercise exhibitions of arithmetical skill, in the same manner as injudicious gymnastic instructors quite go beyond the limits of their art, and instruct their pupils in rope-dancing, for the sake of exhibiting their own skill in the skill of their scholars. To teach the infinitesimal calculus in a gymnasium is a similar excess.

No teacher should ever seek, by excessive stimulation, to spur on his pupils to an unnatural point of attainment, which most of them can never reach. If a few of them reach the desired summit, they usually retain their place on the peak of their intellectual Mont Blanc only a very short time, and by the most violent exertions. When the teacher ceases his efforts, or they leave school, they throw aside the study in disgust; and, according to the fixed law of nature, the excitement is succeeded by a relaxation. The teacher should be contented and pleased, if his pupils attain to some little excess of knowledge, doing so under healthy natural incentives, not too great

\* The ordinance of 1812 prescribed the first six and the eleventh and twelfth books of Euclid.

† See Prof. Lentz, in the "*Annual Report on the Royal Frederic College, at Königsberg*," (*Jahresbericht über das Königl. Friedrichs-Kollegium, in Königsberg*.) 1837.

‡ The mathematical instruction at the schools of arts and trades, and polytechnic schools, is meant to determine the future practical ability in mathematics; that in the gymnasia, rather the formal knowledge of it. The former, therefore, requires a higher degree of skill in the pupil, which also must be based upon a scientific knowledge. It must cultivate the roots of the study to develop it.

for their faculties; if they gain an entirely clear understanding and entire facility in the study up to this point. What has been thus acquired is not easily forgotten after the school-years; and, even if he goes no further with that study, he will always retain a certain degree of knowledge, which, if his teacher was intelligent and judicious, can not easily fail him.

I can not resist quoting a case given by Diesterweg, to illustrate what I have said about excessive stimulation of scholars. In speaking of de Laspé, principal of a private institution at Wiesbaden, he calls him a natural genius in didactics, who "accomplishes extraordinary things by the help of enthusiasm. For," he continues, "is it not praiseworthy and instructive, even if on other accounts to be disapproved of, to see girls of twelve occupying themselves, with genuine delight, with mathematical constructions, and, without assistance, solving problems which any one would admit to be difficult for that age. Many instances," Diesterweg continues, "have occurred in de Laspé's school, to show with what enthusiasm an energetic teacher can fill his scholars. I will relate one. High Mining Councilor K,\* during a visit to the institution, at the invitation of de Laspé, gave out to the boys and girls a geometrical problem. All, great and small, teachers and scholars, went to work on it. No one discovered the solution. Thus passed the first day. On the next, all went early to work on it again, but in vain. De Laspé endeavored to renew the enthusiasm of the school, but no one found out the solution. A dull feeling of weariness and despair came over the whole institution. Nothing could be accomplished in this way. The honor of the institution seemed to be at stake; de Laspé worked, and begun and ended his efforts in bad humor. On the fourteenth day he held an evening devotional exercise for encouragement, and prayed that God would strengthen him and the members of his institution for the solution of the problem. What was the result? At about three in the morning, a boy, in his night-clothes, ran to de Laspé's bedside; he had discovered it. De Laspé sprang up and struck a light; the boy went through his operation. It was right! The whole house was called together on the instant, and the triumph made known. De Laspé was a pedagogical genius." So far Diesterweg.

But does de Laspé, according to this account, really deserve the name of a pedagogical genius? Does a teacher deserve that name, who inspires girls of twelve with a truly unnatural passion for mathematics? a man who, when his whole institution has fallen into a dull weariness and despair because neither he nor any body else in it can solve a problem which a stranger has happened to propose to them,

\* Kramer. See "*H. Pestalozzi*," by A. D., (A. Diesterweg,) p. 23.



makes this foolish despair the subject of an appeal to God at an evening-prayer? And do not the question, "What was the result?" and the answer, that a boy discovered the solution—do not these constitute a pietistical statement of a providential answer to prayer? The "honor of the institution, which seemed at stake," is rescued, it is true; but what honor? So far as this story goes, I can see in de Laspé only a restless pedagogical zealot,\* who urges his pupils to an unnatural mental over-exertion, by especial use of the spur of vanity; who makes fanatics of them. No more monitory warning could be given of an over-excitement calculated to destroy all childlike character. Let the reader only transplant himself in imagination into the despairing, brooding, and study—the abominable fourteen days' restlessness and excitement—of these teachers and poor children, thus hunted to the death, as it were, by their own vanity.

All this seeking ended at last in the *Eureka* of a boy. But the efforts made by the teachers and pupils together show clearly how the inventive method ought never to be abused; or, rather, they show no particular method was used here at all. The teacher of a science or art ought to know, and be able to do, what his pupils are placed under his care to learn; how otherwise could he teach them? No blind man is calculated to be a guide.

Diesterweg visited de Laspé in 1817, and accompanied him and his pupils in a pedestrian excursion to the Johannisberg in the Rheingau. In passing through that region, whose beauty, famous from ancient times, has attracted to it such a multitude of travelers, to view the mighty stream, its vineyards and peaceful towns, with the wooded mountain in the background, the reader will fancy how delighted teachers and scholars must have been. But he will deceive himself.

They had to take much more care not to get lost while they were at work upon some lessons that required their whole attention. Diesterweg relates in particular the following: "In walking, algebraic problems were given out and solved, for several hours at a time; scholars as well as teachers proposing them. At evening, at the inn, after supper, they 'made language,' to use the technical term; that is, de Laspé discussed the laws of language with the pupils for several hours, no one showing fatigue or weariness. What would our boys say to this? I must publicly confess that I never saw any where so much enjoyment, so much pleasure in independent thinking and investigation."

Such "enjoyment" reminds me of the Dance of Death at Basle.

\* I judge only by this story, for I know nothing further of de Laspé sufficient to found an opinion.



## NOTE.

**COUNTERS IN ELEMENTARY ARITHMETIC.**—I used white and yellow counters, of different sizes. The smallest white ones were units, larger ones tens, and still larger ones hundreds. To these I added four yellow sizes; the smallest for thousands, and larger ones for ten thousands, hundred thousands, and millions. I did not immediately go any further.\* The units served all the purposes for which beans, marks, &c., have been used; as, practice in counting, division into equal and unequal parts, &c.

In teaching written arithmetic, I found the following use of counters very convenient. The children of from six to eight years old usually knew as much about money as that, for instance, four pfennigs made a kreuzer, and six kreuzers a sechser. I took advantage of this actual experience of theirs to base my instructions. After they had learned sufficiently well to count with the unit counters, I said, "Just as the large sechser is worth six little kreuzers, so is one larger counter worth ten small ones; so we will call the large one a ten. Then I put with the ten nine more ones, successively, and so taught them to count from ten to nineteen; then I added a tenth one, and changed the ten ones for a second ten, and called the two tens twenty. In the same way I went on to ten tens. Now, just as ten ones is a ten, so are ten tens a hundred; which is again represented by a larger counter. On these exercises there may be constant exercises; such as, How many ones in two, three, &c., tens? How many ones, or tens, in one hundred? Then count out ten times ten ones, and then substitute ten tens, to the same value.

By using the counters on the table, the writing and reading of figures will be easily learned. It must only be remembered that the ones stand in the first place to the right, the tens next, &c. Then two ones may be laid down, then three tens, then a hundred, and lastly, at the extreme left, a thousand. Then the pupils may be taught to read them off, thus:—Two; thirty; thirty-two; one hundred; one hundred and thirty-two; one thousand; one thousand one hundred and thirty-two.

Writing the figures connects itself very naturally with these exercises. Supposing the children can write the Arabic figures, they may be told that they must be written exactly as the counters lie on the table; that the first figure to the right represents ones, just as the first counters to the right do; the next tens, &c. The figures should at first be written in the same order in which they are at first explained; beginning with the units.†

It can now easily be made clear what is the use of the cipher in written arithmetic. Let the pupil first lay down twenty-one in counters; two tens and a unit. But, ask him how will he express two tens and *no* unit? There must be a sign to show that there is no unit. I took, for this purpose, small round white pieces of pasteboard, which I put wherever there was no figure, whether in the place of units, tens, hundreds, &c. If it be required to lay down 302, the child placed two ones, a cipher for no tens, and three hundreds.

The orderly placing of the counters, the reading off of the number, and the writing of it should proceed together. If there are several pupils, there may be a division of labor; some laying down counters and others writing, and then each reading off the work of the other.

In this way the children will gain a knowledge of the decimal system, and of the profound wisdom with which the ancient Hindoos arranged their figures by it.‡ But the counters can be further used in explaining the ground-rules, espe-

\* It would be well to have 1, 10, 100, 1000 printed on the counters; and on the other side 1, X, C, M, according to their value.

† The Roman letters on the counters can be easily used so as to show the value of a figure, one, for instance, in different places.

‡ It was not the Arabs, but the Hindoos—as was already stated—who invented the decimal

cially addition and multiplication, Under the columns of counters lay a rule, for the line, under which to place the sum. If the units add up to 12, change ten of them for a ten, put it with the column of tens, and put the remainder of 2 under the units, and so on. When with the aid of the counters the children have learned to count, the decimal system, writing and reading figures, and a more or less clear knowledge of the four ground-rules, the counters should be gradually disused.\* They might be afterward used again in explaining decimal fractions.

EXPLANATION OF THE USUAL ABBREVIATED PROCESSES IN WRITTEN ARITHMETIC.—I will illustrate by a few examples what is said in the text of the means by which our teachers may endeavor to explain written multiplication and division. For instance, the example in multiplication,  $6 \times 11356$ , may be worked in three different ways, as follows:—

a.	b.	c.
11356/6	11356/6	11356/6
68136	36	60000
	300	6000
	1800	1800
	6000	300
	60000	36
	68136	68136

The first, a., is the common abbreviated form; b. and c. give the solution at length, as it ought to and must be worked, before the abbreviated mode. For the solution of c., we will suppose a case. Six brothers inherit each 11356 florins. What is the entire sum? The multiplicand consists of one ten thousand, one thousand, &c., down to six units. Each heir will have one ten thousand, in all sixty thousand; also one thousand, in all six thousand; and so on; lastly, each will receive six units, in all thirty-six. Add these products together, and you will have 68136. The example b. is entirely similar to example c., except that here the multiplication begins with the units, as in the abbreviated mode. The latter will become clear by comparison with b. It will readily be seen that the abbreviation consists in this: that the product of each separate place is not written down in full; but that, when for instance the product of the ones furnishes tens, they are kept in mind and added to the product of the tens, &c.; so that the additions in example b. are performed in the mind. Thus,  $6 \times 6 = 36 = 3$  tens and 6 units, which last are put in the units' place in the product. Then,  $6 \times 5$  tens = 30 tens, which with 3 tens from the first product makes 33 tens, or 3 hundred and three ones, which remainder put in the tens' place in the product; and so on.

The pupil can thus be shown that the abbreviated operation in example a. must begin from the lowest place, so that the overplus from each place may be carried to a higher.

system and the wrongly-named Arabic figures. What other mathematical discovery can be compared with this? See Whewell, I., 191.

\* In the arithmetics of Diesterweg, Stern, &c., other modes of making numbers visible are used. As to counters, the question is, whether they can be used in schools for a large number of pupils. Herr Ebersberger, of the Altorf Seminary, advises to fit up a large blackboard with parallel horizontal ledges or gutters of tin, in which large counters may be set up, as letters, &c., are set up in using the board to teach reading, &c. Dr. Mager remarks, in his treatise "*On the Method in Mathematics*," (*Ueber die Method der Mathematik*.) that he has used counters in teaching. He says, (p. xviii.) "The second stage brings in the decimal system, first with counters and then with figures. The smallest counters represent units, a larger size tens, the largest hundreds. It is a pleasure to see how the children can use the counters to add, multiply, subtract, and divide. When they can work both with counters and mentally, nothing is easier than to work the same problems in figures; the greater convenience of the written method induces the children to learn it quickly."

If the abbreviated mode of multiplication has been mechanically learned, still more has the abbreviated mode of dividing "over the line." In this, great heaps of figures are carefully piled up together, and a mistake in the construction would cause an error. Take, for example,  $7860 \div 12 = 655$ . The work is done thus: write the dividend and the line at the right hand; write the divisor, 12, under 78; ask not how many twelves in 78, but how many ones in seven. Try with seven times;  $7 \times 12 = 84$ , it does not go; then with 6; it will go; write 6 at the right of the line; six times one from seven leaves one, which write over the seven; then say, twice 6 is 12, from 18 leaves 6, which place over the 8. Now make another divisor by writing 1 under 2, and another 2 next the 2, under 6, and make 66 the next dividend. Then, 1 in 6 5 times; write 5 at the right of the 6 in the quotient; 5 times 1 from 6 leaves 1, which write over the upper 6; then, twice 5 is 10, from 16 leaves 6. Then remove the divisor along again; and say, 1 in 6 5 times, 5 from 6 leaves 1, twice 5 is 10, 10 from 10 leaves nothing; and set the second 5 at the right hand in the quotient. As the numbers are used, they are struck out. There is not the least effort to understand the work. When it is completed it is proved by multiplication; and, if wrong, there is no intelligent endeavor to find the error, but the operation is to be repeated.

## X. PHYSICAL EDUCATION.

[Translated from Raumer's "*History of Pedagogy*," for the American Journal of Education.]

PHYSICAL EDUCATION includes,

1. Care of the health.
2. Inuring to endurance and want.
3. Training in doing; in bodily activity. Gymnastics.\*
4. Training of the senses, especially of the eye and ear.

### I. CARE OF THE HEALTH.†

The realists have paid especial attention to the care of the health; such as Montaigne, Bacon, Locke, and Rousseau.

At a later period, Hufeland's "*Art of Preserving Life*" has had much reputation. Much of what he says relates to people whose nerves are disordered by overexertion, and is useful for the recovery of such.

Care of health includes, first, diet. The most harmful food had become even customary among us, old and young; and it was at a late date that we began to examine the operation even of the most usual articles of diet. The temperance societies, for instance, have come out all at once against brandy, and its numerous family. All such measures have influenced the diet of the young, but have not had a thorough operation on it. Who does not know how many parents now give their young children coffee every day; and how extensively the children drink tea.

Warnings enough can not be given against the frequenting of the stomach-destroying confectionery-shops.‡ Another fact of the same kind is the sight of even boys walking about with tobacco-pipes and cigars in their mouths.§

*Clothing.*—Rousseau, and the Philanthropists, his followers, were the first who declared war against unsuitable modes of clothing

\* Bacon, in a section on Athletics, says, "Endurance, both of active exertion and of suffering. Constituents of active exertion, strength, and quickness; enduring suffering is either patience under indigence or fortitude in pain." (De Augm. Scient., 4, 2, 113.)

† I have already treated of the education of the youngest children.

‡ This evil increases in Berlin, every year. In the time of the Turning societies, therefore, they and the cake-bakers were utterly at variance.

§ And have any good results followed from the efforts of the health-police against the sale of opium-cigars, for instance, which were openly vended at the Frankfort fair? Woe to all people who learn to love that poison!

children.\* The Turners introduced an appropriate, convenient, and healthful costume; and endeavored at the same time to oppose the foolish vanity of a change of fashions. I shall say nothing at all of the fashions as prevailing among women. To appear new is always the thing sought after, even if a new monstrosity is the result. The sense of beauty seldom betrays, but yet we have seen the hoop-petticoat and the French rococo style reappear.

When shall we cease to make children sleep in deep, stupifying feather-beds, and in unventilated chambers?

Early to bed and early to rise, says the old proverb. Excessive mental labor is harmful to all, especially by night, and is utterly destructive to the young, and most of all when drowsiness is kept away by coffee, &c. Such a course results in a truly horrible condition of overstimulation, in which even a healthy person completely loses control over himself.

The body is a temple of the Holy Spirit. How do those desecrate that temple, whose god is their belly! And it is most fearfully defiled and destroyed by the withering secret sins which have made such fearful progress amongst our youth. But our educators do little to avert the evil—they rather pour oil upon the fire. When, to the influence of stimulating drinks, excessive eating, hot feather-beds, we add that of provocative dances, plays, and romances, and of those indecent pictures which make such deep impressions on the minds of the young, and destructively stimulate and entice during waking and sleep, who can wonder that such sins gain influence over our youth, and destroy them, soul and body? Do we make serious efforts to prevent these influences? Do we not rather behold them with indifference; arranging the dances ourselves, taking the children to the theaters when Kotzebue's and other loose pieces are acted? Is it not so? And does not all the world cry out, Pietism! if any one says a word against this destruction of souls!

But the question has been asked, almost despairingly, by many, How are these secret sins to be prevented? First, by not giving them any assistance by making the young more susceptible to them, by rendering them morally and physically weak and corrupt. And, second, by positive discipline and strengthening of the body. The best protection of all, however, is an education in the fear of God; a means which may avail even when the destruction has gained a footing. Those who are corrupted in this way must be managed according to their peculiarities. To shameless cowards the truth should be told, that their habit is suicide; and that, if they go on in

\* See the chapter on him.

it, they have already lived most of their days. The sight of any one who has become idiotic by onanism produces a powerful effect on boys. There are also, however, cases where it is better to encourage, and to give assurances that, upon a cessation of the habit, the body will become strong again, though on that condition only.

Lying goes hand in hand with this devilish secret vice; and bodily and mental filth, and atrophy.

Lorinser's article "On the protection of health in the schools"\* directed the eyes of educators to the startling condition of the health of the pupils in our gymnasia. It was asked, What are the universal sources of the destructive physical condition of the schools, that make their pupils die faster than other German youth? Lorinser answered, The evil is based in the number of studies, the hours of instruction, and the home labor.

The number of studies, especially since real studies have made way into the gymnasia, has increased since that time. Still, several Prussian gymnasium programmes indicate that the number of hours of instruction was as great formerly as now; because as much time was devoted to their fewer studies as to our more numerous ones. Thus the reason of the evil should not be found in the number of hours of instruction, unless we answer that the scholars of the present day are less capable of study than they were then. Nor should the number of studies be blamed, without further examination; for fewness of studies has its evils too. Ratich taught "Only one thing at once. Nothing is more injurious to the understanding than to teach many things at the same time; it is like cooking pap, soup, meat, milk, and fish all in the same kettle, at once. But one thing should be taken up in order after another; and only when one has been properly attended to should another be entered upon. A single author should be selected for each language, from whom it should be learned. When he is thoroughly understood, and as it were quite swallowed down, another may be read. Nothing new should be taken up until what went before is understood quite thoroughly, and to entire sufficiency."

On this it has been remarked,

"Is this really according to the 'course of nature?' Would it be natural to eat broth alone, or fish alone, for eight months together, and even longer, as Ratich's pupils studied Terence? Is not a variety of reading matter, as in Jacobs' excellent readers, much more suitable to it? Just as we never eat one thing alone, but bread with meat,

\* This appeared, in 1836, in the "*Berlin Medical Gazette*," (*Berliner Medicinische Zeitung*.)

for example, it should be the care of the teacher not to clog his pupils with one thing forever. And, as the skillful host tries to furnish dishes which are suitable to each other, and which by their very connection shall conduce alike to good flavor and good digestion, so should the skillful pedagogue teach the same pupils, during the same term, various things, such as will serve to complete each other, and by whose alternation the pupil shall remain fresh, not satiated, but mentally nourished in a healthy way."

A judicious interchange of studies would be favored even by Lorinser; but an injudicious one—consisting merely in a restless changing from one thing to another, without ever asking whether all these single studies will harmonize together, and become one complete whole in the boy's mind—such an interchange I shall, of course, not need to discuss at all. On that point I agree wholly with Lorinser's complaints.

But the chief reason of the bodily as well as the mental bad condition of the pupils seems to lie less in the multitude than in the ill-contrived method of the doing of the school-work. Many things are forced upon the pupils which they do not like; especially a chilly, abstract method of studying language, and an unnatural, over-stimulated mode of mathematical study and production. Nor is this the case at the gymnasium merely; the evil is still greater in the lower schools. And, on the other hand, the pupils are kept away from what is appropriate for them, and from what they enjoy. Such a perverted method of mental stimulation and over-stimulation must necessarily destroy the body as well as the mind.

The case requires particular attention where each teacher in a school is attentive to his own department only, and makes such requirements upon the scholars as if they were under his instruction only, and had no other work to do. Thus, when the historical teacher requires of them to learn the most trifling things, such as innumerable dates; the geographical teacher, the smallest towns and rivers, the number of inhabitants of unimportant cities; the French teacher, the six first books of "*Télémaque*;" or the Latin teacher, many pages of the "*Loci Memoriales*," to be committed to memory; when the mathematical teacher spurs them forward to the integral calculus, &c.; in such a case, the conscientious scholar must indeed succumb to the burden of "home-labor," or must quite give up conscientious work.\*

\* As an instance of the unreasonable conduct of many department-teachers, it may be mentioned that, in a certain well-known institution, the teacher of mathematics set as much home-work to the scholars to do as all the rest of the teachers together.



## II. INJURING TO ENDURANCE AND WANT.

What has already been said indicates clearly enough that nothing is usually done in this direction by parents; but quite the contrary. It is usual to enervate the children, to seek to satisfy all their desires. Nor should this astonish, in an age when the most fleshly epicureanism prevails. How could strong self-denial and self-command grow out of such an idle, pleasure-loving home-life? These virtues are to most persons bitterness and folly. Woe to humanity, when nothing is desired except mere undisturbed animal enjoyment, and when all nobler aspirations pass for folly!

It is difficult to proceed methodically in the more passive portion of bodily training. This must be lived rather than taught. Boys in the country, who run about out-doors, in the hottest as well as in the coldest weather, in rain and snow, become hardened against wind and weather, without their parents or teachers knowing any thing of it. But if a child grows up in a great city, where it is probably half an hour's walk and more to the nearest city-gate, especial pains must be taken to see that he goes into the fresh air every day. For this reason gymnastic establishments are an especial need of large cities.

It is important that the child should become inured to wind and weather during the first years of his life.

Journeys on foot afford the best opportunity for hardening and privations of all kinds. Bad weather, bad roads, miserable inns, and innumerable other inconveniences, annoy even the most fortunate traveler. But all this will be endured, especially in the company of companions, not only with patience but with superabundant delight. He who makes some sour faces at rain and bad food suffers double.

It is to be lamented that steamboats and railroads have made such a destruction of journeys on foot. Such a flitting across countries is entirely useless. It does not strengthen the body; one who goes in one day, by railroad, from Manheim to Basle, seems to himself afterward to have dreamed of an exhibition, where the Rhine and Neckar, the Black Forest and the Vosges, Heidelberg, Carlsruhe, Strasburg, &c., were all passed rapidly before his eyes—all is to him a transitory cloud-picture.

In war, young persons who have been hardened, who are easily satisfied, and not corrupted by luxury, are far superior to their opposites. The latter are quite without self-control, and as if without their senses or courage, upon being summoned to turn out a little early in the morning, especially after having a cold night in the open air.

## III. TURNING.

It is well known how highly the Greeks valued gymnastics, and

how the Roman boys practiced bodily exercises as a preparation for war. We are equally well acquainted with the bold strength and activity of the ancient German nations, and their chivalric renown in the middle ages. As the cities became prominent, the citizens were not behind in this respect, and there grew up among them fencing-schools for the mechanics, privileged by the emperor.\*

That bodily exercise is an important part of the training of the young was a truth recognized by Luther; but which, since the sixteenth century, has been made most prominent by those already mentioned as realists.

Luther says,† "It was right well thought of and ordered by the ancients, that the people should exercise themselves, and learn something useful and honorable, so that they might not fall into rioting, vice, gluttony, drunkenness, and gaming. Therefore these please me the best of all—these two exercises and amusements, to wit, music and tilting, with fencing, wrestling, &c.; whereof the first drives away care of heart and melancholy thought, and the second gives well-proportioned and active limbs to the body, and keeps it in good health, by jumping, &c. But the most weighty reason is that people may not fall into drunkenness, vice, and gaming, as we see them, and to say, in court and in city, where there is nothing except 'Here's to you! Drink out!!' And then they gamble away perhaps a hundred florins, or more. Thus it goes, when men despise and neglect such honorable exercises and tiltings."

Luther observes, very correctly, that an active, healthy man, skillful in his exercises, and who takes pleasure in them, will for that very reason energetically withstand the loose and vicious life of mere pleasure-seeking, while the sensual at once give up to it.

Montaigne, the realist forerunner of Rousseau, blames those weak parents who can not bring themselves to keep their children on simple food, to see them covered with sweat and dust from their exercises, riding a spirited horse, receiving a smart thrust in fencing, or a kick from the discharge of a gun. "He who desires," he says, "to see his son a strong man, must certainly not make him effeminate in his youth, and must often set aside the rules of the physician. It is not enough to make his mind firm; his muscles must be made firm too. I know well how my own mind is tormented by its companionship with so weak a body, which depends so much, and bears so heavily, upon it."‡

Rousseau says, "The body should be strong, that it may obey

\* See Jahn's "*Turning System*," (*Turnkunst*), p. 278.

† Walch, XXII., 2280, 2281.

‡ *Essays*, I., 299—301.

the soul—a good servant should be strong. The weaker the body is, the more it commands; and the stronger, the more it obeys.\* A weak body weakens the soul." "If you would develop the understanding of your pupil, develop the powers which his understanding is to govern; incessantly train his body. Make him strong and healthy, that you may make him wise and intelligent; make him work, run, cry out, always busied about something; let him be a man in strength, and then he will be one in reason."†

We have already seen how these counsels of Rousseau were followed in the Dessau Philanthropinum, where they practiced gymnastics, and took pedestrian journeys with the boys. Rector Vieth, of Dessau, a man of great skill in many bodily exercises, published an "*Encyclopedia of Bodily Exercises*," (*Encyklopädie der Leibesübungen*.)

But the greatest attainment was made at Salzmann's institution, under Guts Muths; who wrote a work on gymnastics, which gained a wide influence.‡ It was founded upon "*Emile*."

The chief principle of physical education is, according to Guts Muths, "Train all the powers of the physical man to the point of utmost possible beauty and usefulness of the body, as of the teacher and servant of the soul."§ Gymnastics is "a system of exercises for the body, intended to perfect it."||

Guts Muths, with great care and judgment, worked out this system of discipline in the fullest detail; and at Schnepfenthal there was serious earnestness in the department of physical training. The children played, not only for the sake of relaxation from the labor of the school, but their bodily exercises were made a necessary part of their intellectual training, and an indispensable department of instruction in the school.¶

Meierotto, the eminent Berlin rector, erected, in 1790, a roomy

\* Just as Marcellus Palingenius had said:

"Corpus enim male si valeat, parere nequibit  
Præceptis animi, magna et præclara iuventis."

† I have said more about gymnastics, and errors in "*Emile*," in my chapter on Rousseau, q. v.

‡ "*Gymnastics for the Young*," (*Gymnastik für Jugend*.) By Guts Muths. Second edition. Vienna, Doll, 1806. Prof. Klumpp issued a third edition, with many additions. The first edition was translated into Danish, English, and French.

§ *Gymn.*, p. 31.

|| *Id.*, p. 13.

¶ I shall hereafter discuss Guts Muths' instructions for the cultivation of the senses. In 1817 he published a work on Turning, which set forth the relations between Turning and collective exercises. Turning has no more reference than school instruction has to any particular class; but seeks a general development, equally beneficial in any condition of life. Turning is to develop the bodily independence of individuals; exercising, to make them efficient members of a body. Games, in which a company of Turners put forth free, graceful, general exertions, are much preferable to a stiff exercise under direction of a subaltern. Skillful Turners can very quickly learn the infantry manual. It is very good to teach soldiers the Turners' exercises; but it requires instant attention when the Turners begin to play soldiers.

exercising-place, in connection with the Joachimsthal Gymnasium, including among other things a swinging-tree; and this may be considered a forerunner of the subsequent Turning organizations in Berlin. At the repeated request of Meierotto, King Friedrich Wilhelm II. gave 30,000 thalers (about \$22,500) toward the purchase of the ground.\*

Fichte, in his orations to the German nation, strenuously recommended bodily exercise, and cited Pestalozzi. He says, "Nor must another subject, brought forward by Pestalozzi, be omitted; namely, the cultivation of the bodily activity of the pupil—which should go hand in hand with the mental. He requires an A B C of this department. His most important observations on the subject are as follows: 'Striking, carrying, throwing, pushing, drawing, whirling, wrestling, swinging, &c., are the simplest bodily exercises. There is a natural order of succession from the beginning of these exercises up to a complete knowledge of them; that is, to the highest degree of activity, which makes certain the hundred applications of striking, pushing, swinging, and throwing, and gives certainty of hand and foot.' According to these views all depends upon the natural order of study; and it will not suffice to begin blindly and arbitrarily with any exercise whatever, and then to assert that we have a physical education, as the ancient Greeks had. In this respect every thing is yet to be done; for Pestalozzi did not prepare an A B C of this department. But such a one must first be prepared; and, to do it properly, there is needed a man equally at home in the anatomy of the human body and in scientific mechanics; who unites with this knowledge a high grade of philosophical character, and who is thus fitted to bring to a condition of symmetrical perfection the machine which we may consider the human body as intended to be; and so to conduct every step in the only possible right course as to prepare and facilitate every subsequent one, and thus not only not to endanger the health and beauty of the body and the powers of the mind, but to strengthen and increase them, and thus to develop this machine from every healthy human body. The indispensableness of this department, in an education professing to train the entire man, and claiming to be especially appropriate for a nation seeking to recover and afterward to maintain its independence, needs no further mention to be perfectly clear."† Pestalozzi's institution did not accomplish what Fichte expected of it in respect to bodily exercise; but among his hearers there was one who was perhaps influenced by these very

\* *Attempt at an Account of Meierotto's Life*, (*Versuch einer Lebensbeschreibung Meierotto's*.) By Brunn. Berlin, 1802. p. 312, &c.

† "Oration," &c., pp. 171, 172. "Weekly for Human Development," (*Wochenchrift für Menschenbildung*.) Vol. 2, No. 11.

addresses to his distinguished labors for gymnastics; namely, Freidrich Friesen.\*

Bodily exercises were commenced at Yverdun in 1807; and there is an account of the mode pursued, and of the views entertained on the subject, in the first volume of Pestalozzi's "*Weekly for Human Development*."† This account contains much that is correct and well worth consideration, and also many errors. It is true that the body should not be developed in a partial manner, that is, not for fencing or jumping alone; but that the gymnastics pursued should aim at a harmonious total development of the whole. The bodily ill condition of manufacturing operatives is also well described.‡ "Manufacturing labor," it says, "is undermining the physical strength of our people still more than all this. 'Stand up there, boy, at the carding-table; girl, sit at the cotton machine, or the embroidering machine; spread your colors from morning to night, or turn your wheel, or sew, from morning to night; and I will pay you more than a farmer or his wife will earn with their hacking and grubbing.' Thus have our poor been addressed, for forty or fifty years; but they did not say, This one-sided sort of occupation will make you crippled and sickly. They did not say, When the cotton manufacture ceases to prosper, when power-looms are invented, when embroidery goes out of fashion, you will be left with your distorted hand, your weakened bones, and injured digestion, as unfit to learn any other manufacturing as to use the bill or the axe. You will live out your old age a worn-out and hungry beggar. You will know nothing except what you have learned, and you have sacrificed your general strength of body and its cultivation to a one-sided and crippling occupation, and to its deceptive profits. Examples of such destruction have long been before our eyes; but white bread, bacon, wine, brandy, and insinuating manners make a deeper impression than all these dangers. And every thing that was bad, on the part of the parents, drove the children, even down to the youngest, to these carding-tables and machines. Why did these wretched people make such sickly creatures of their children? It was because they shared with them the white bread, and bacon, and wine, and brandy that they earned. In many places the miserable school-rooms had already prepared the children for the miserable factory-rooms. The parents took them out of the former and drove them into the latter, where they would at least earn them something to eat. Thus the number of sickly people increased in the land to thousands. But now they no longer receive their wages,

\* See the extracts below, from Jahn's preface to the "*Turning System*."

† Nos. 3-6, from 3d June, 1807, onward, pp. 33-37.

‡ *Ib.*, pp. 43, 56.

or their white bread and bacon: but these miseries of the land have resulted in this; that our people and their physical condition, in many places, need, more than elsewhere in Europe, the assistance of a wise government, and of the power of the human heart, which is now reasserting itself, against the consequences of this manufacturing selfishness, and their depth of physical degradation and weakness."

But the higher classes had become hardened, and had lost all natural sensibility and sympathy.\* "But it is not the only evil," the article continues, "that innumerable numbers of our poor are fallen into a condition in which they look more like ghosts than like men. The consequence of these errors, as to what we physically need and should be, have introduced, even into the minds of our wealthy and healthy people, an absurdity and weakness which is shown by singular peculiarities. In many places, if you would be reckoned among the honorable and respectable part of the community, you must not, even in the hottest weather, take off your coat and carry it on a stick or on your arm. And your children must, all summer, wear stockings, and have a cap on their heads; must not climb trees, nor jump over ditches, &c. And, in the same places, the most unreasonable stiffness of etiquette has arisen from these notions of maintaining respectability. You must not cut wood before your door, even if you might escape a fever by doing so. The physical degradation, which reached its height by means of the cotton and silk manufactures, had commenced before, in the age of universal perukes and small swords. This was the period which laid the real foundation of our physical troubles, in high and low ranks." And the discontinuance of the popular festivals is justly stated to have aided in producing this unhealthy physical condition. The article says,† "A new and arbitrary and un-intelligent police interferes with all the pleasures of the young. The national festivals, which expressed the powerful ancient popular spirit, began to be disused; they were gradually driven away from our plains, and forced back among the mountains. And even among those heights they became degraded. They are no longer an expression of the strength of the people, a means of elevating and distinguishing the strong men of the land, or objects of popular attention and confidence. They sank down to mere paid exhibitions for strangers looking for exhibitions of skill, and for the rich who paid largely for them. And if we should to day endeavor to renew them, without renewing our people themselves, they would still not have their ancient appearance. They would be unworthy of our ancestors; but for us, as we are, satisfying, entertaining, and misleading to our wish."

\* *Ib.*, pp. 50, 51.    † *Ib.*, p. 51.



\* \* \* "It is such a bodily training<sup>a</sup> as the children of our ancestors had and enjoyed that must be given to our children ; and the spirit of their popular gymnastics must be raised up again. But this is no partial spirit ; it submits to no influence from the popular festivals. On the contrary, these, if genuine, are only the expression of the prevalence of it. It must be just as universally active and visible in households, in schools, in the labor of the field, in Sunday sports, and in amusements, as on the Alps, and at the shepherd's festivals. It must appear in the opinions of the people respecting their corporeal necessities, and in their care for them. The attainment of this object is entirely impossible, unless there is awakened in the young, from childhood up, and made universal, a lofty, active, and independent sense of power ; and this will inspire the child, of itself, to all which is desirable for the salvation of the fatherland."

Who would not subscribe to these views of Pestalozzi's ? But who can approve of the method of teaching gymnastics in his institution ? The same article goes on to say,\* "The essence of elementary gymnastics consists in nothing else than a series of exercises for the joints, by which is learned, from step to step, all that the child can learn with respect to the structure and movements of his body, and its articulations." And again,† "He can acquire this knowledge in the quickest and easiest way by means of these questions, What motions can I make with each separate limb of my body, and with each separate joint of it ? In what directions can these movements be made, and in what circumstances and positions ? How can the movements of several limbs and several joints be combined together ?"

Would it not be imagined that this was a system of gymnastics for jointed dolls ? The objects of it have joints, and nothing but joints ; and what is sought is, to find what their joints will do, not what their flexibility of body will do.

There now follow some methodical exercises ; not of the body, but of the joints. A, movements of the joints of the head ; B, of the body ; C, of the arms ; D, of the legs. Each separate joint is first to be exercised by itself, and then in connection with limbs whose joints have already been exercised. No joint is omitted ; in the arms, for instance, are exercised the elbow-joint, the wrist, and the finger-joints. Of the last he says, "Here also the connection and separation of the movements must receive special attention."

In short, we find in the gymnastics of the Pestalozzian school, as in their other educational departments, an unreasonable share of elementarizing ; in the present case even reaching an obvious degree of

\* *Ib.*, p. 64.    † *Ib.*, p. 69.



caricature, at which an indifferent spectator might laugh, but at which the weary, overdrilled children would probably cry.\*

We now come to a man better fitted than any of his predecessors to lay out a new course for bodily exercises, and who did actually lay out such a course. This was Friedrich Ludwig Jahn.

In his work, "*The German Turning System*," (*Die Deutsche Turnkunst*),† he gives a history of his undertaking. This is so peculiar, and so characteristic of this remarkable man, and his useful labors, that I shall give the following extracts from it:—

"Like many other things in this world, the German Turning system had a small and insignificant beginning. In the end of the year 1809 I went to Berlin, to see the entry of the king. At that celebration a star of hope arose upon me; and, after many errors and wanderings, I became established here. Love to my fatherland, and my own inclinations, now made me a teacher of youth, as I had often been before. At about the same time I printed my '*German Nationality*,' (*Deutsches Volksthum*.)

"During the beautiful spring of 1810, a few of my pupils began to go out with me into the woods and fields on the holiday afternoons of Wednesday and Saturday, and the habit became confirmed. Their number increased, and we had various youthful sports and exercises. Thus we went on until the dog-days, when the number was very large, but very soon fell off again. But there was left a select number, a nucleus, who held together even during the winter, with whom the first Turning-ground was opened, in the spring of 1811, in the Hasenheide.

"At the present time, many exercises are practiced in company, in open air, and before the eyes of all, under the name of Turning. But then the names Turning system, Turning, Turner, Turning-ground, and the like, came up all at once, and gave occasion for much excitement, scandal, and authorship. The subject was discussed even in the French daily papers. And even here, in our own country, it was at first said, The ancient German ways have brought forth a new folly. But that was not all. Unfavorable opinions sprang up, from time to time, as numerous as the sands of the sea. They had never any reasonable ground, and it was laughable to see how they opposed with words that whose works were speaking so plainly.

"During the winter we studied whatever could be got on the subject. And we reflect with gratitude upon our predecessors, Vieth and

\* This system of gymnastics teaches the exercising of every joint of the body, just as the "*Book for Mothers*" teaches the knowledge of them.

† Jahn published this work, in connection with Eiselen, at Berlin, in 1816. Its motto was, "The arts are easily lost, but are only found again with difficulty, and after a long time."—*Albrecht Dürer*.

Guts Muths. The stronger and more experienced of my pupils, among whom was my present assistant and fellow-laborer, Ernst Eiselen, made a very skillful use of their writings; and were able, during the next summer, to labor as instructors in Turning. Among those who then devoted themselves especially to swinging exercises, and afterward assisted in the full and artistic development of them, and even became thorough masters in them, were Pischon and Zeuker, who fell, on the 13th of September, 1813, at the Göhrde.

"In the summer of 1812, both the Turning-ground and system of exercises were enlarged. They became more varied, from Turning-day to Turning-day; and were mutually developed by the pupils, in their friendly contests of youthful emulation. It is impossible to say in detail who first discovered, tried, investigated, proved, and completed one or another exercise. From the very beginning, the Turning system has shown great community of spirit, patriotic feeling, perseverance, and self-denial. Every extension or development of it was used for the common good. And such is still the case. Professional envy, the absurd vice of selfishness, meanness, and despair, can be charged to no Turner. August Thaer, the youngest brother of a Turning-group of three, at that time invented sixty exercises on the horizontal pole, which he afterward increased to a hundred and thirty-two. While Thaer was taking care of a sick brother in the field, during the war, the same epidemic carried him off, in 1814, of which his brother recovered. He had before that time assisted in the establishment of a Turning-ground at Wriezen, on the Oder. Toward the end of the summer exercises of 1812, a sort of association of Turners was formed, for the purpose of the scientific investigation and artistic organization of the Turning system in the most useful and generally-applicable manner. This lasted during the whole of that winter in which the French were frozen up, during their flight from Moscow. In this association, the place of manager was, according to my wish, filled by Friedrich Friesen, of Magdeburg, who had devoted himself especially to architecture, natural science, the fine arts, and education; who had studied industriously under Fichte, and in old German with Hagen; but also, above all, knew what the fatherland needed. He was then employed in the teachers' and educational institution of Dr. Plamann, which, though not of great reputation, has educated able teachers for the fatherland. Friesen was a handsome man, in the fullness of youth and beauty, perfect in soul and body, innocent and wise, and eloquent as a seer; a very Siegfried, full of gifts and grace, and beloved alike by old and young; a master of the broadsword—quick, bold, firm, sure, strong, and unwearied, after his hand had closed upon the hilt; a strong swimmer—for whom no

German river was too broad or angry; a skillful rider on any kind of saddle; and an ingenious practitioner in Turning, which owes much to him. He had no hesitation in advocating, in his free fatherland, whatever his soul believed. He fell by French treachery, in a dark winter night, on the Ardennes, by the shot of an assassin. No mortal blade would have conquered him in battle. There was none to love him and none to sorrow over him; but as Scharnhorst has remained among the old, so has Friesen among the young, the greatest of all.

"On the king's proclamation of February 3d, 1813, all the Turners capable of bearing arms entered the field. After long persuasion, I succeeded, at Breslau, in inducing Ernst Eiselen, one of my oldest pupils, to take charge of the Turning institution during the war. Still, it was after a hard conflict with himself that he remained at home, although doctors and soldiers alike represented to him, and his own experience daily proved, that, in consequence of a long previous illness, and bad medical treatment, the hardships of the war must necessarily be too much for him. I myself accompanied Eiselen from Breslau to Berlin, at the time when the Prussian army commenced its march, and the capital was already freed from the French; and introduced him to the authorities and the principals of schools, who promised him all manner of co-operation, and who have ever since shown confidence in him. Since that time, Eiselen has been at the head of the Turning institution during the summers of 1813 and 1814, and the intervening winter, and has conducted the exercises of those who were too young to carry arms.

"At the end of July, 1814, I returned to Berlin, and passed the rest of the summer and the first part of the winter in laboring industriously for the improvement of the Turning-ground. During the autumn, I had erected a climbing-pole, sixty feet high; a useful and necessary apparatus for climbing, and, in a level country, indispensable for training the eye to long distances. In winter, when the volunteers returned, bringing many Turners with them, the associated discussions upon the Turning system were renewed. The exercises of all the summer were considered and discussed, and the subject elucidated by argument.

"On the escape and return of Napoleon, all the Turners able to bear arms volunteered again for the field; only two who had fought during the campaigns of 1813 and 1814 remaining at home, from the consequences of those campaigns. The younger ones, who remained behind, now took hold of the work again, with renewed zeal. During the spring and summer of 1815, the Turning-ground received still further improvements and enlargements.

"In the following autumn and early part of winter, the Turning sys-

tem was again made the subject of associated investigation. After the subject had been ripely considered and investigated in the Turning council, and opinions had been compared, experience cited, and views corrected, a beginning was made in collecting in one whole all the results of earlier and later labors on the subject, and all the separate fragments and contributions relative to it; a labor which has lastly been revised by my own pen.

"Although it was only one architect who at first drew the plan, yet master, associates, pupils, and workmen have all labored faithfully and honestly upon the structure, and have all contributed their shares to it. These shares can not now be separated again. Nor shall I be so unreasonable as to praise the living to their faces.

"This is a brief account of my work, my words, and my book. Neither of the three is perfect; but the book may serve to promote a recognition of its ideal. It is put forth only by way of rendering an account to the fatherland of what we have done and endeavored.

"This information will be welcome to many educators and teachers, friends of youth and respectable people, who know well what are the needs of the fatherland. And our former pupils, scattered throughout all ranks of civil life, will gladly hear an account of the present state of the system. From all sides have come repeated requests for a work on Turning. To this desire we have responded in writing as well as the circumstances and our own abilities would permit. We have held an active correspondence, even to the distance of beyond the Rhine and the Vistula. We have sent copies of portions of the third section to all who applied for them. The increasing diffusion of the system, and of improvements in it, are so rapid that it is impossible for the work to be perfectly complete in it. It was impossible for us to remain indifferent to the fact that the German Turning system, developed and brought out with so much labor, would receive injury from any half-knowledge, careless writing, or half-done work. From mere hearsay and looking on one can no more write on Turning than the blind on colors."

With the Turning system came up a peculiar language. This must be understood by any one who intends to acquire a full knowledge of Jahn and his system. He says, in speaking of it:—

"In science or art, the German language will never leave those who know and admire it in difficulty. The proper words will never be found wanting in it to express all degrees and all results. It will keep step with the real course of development, will be found sufficient for every new phase of our people, for every occasion of life, and will keep up with every advance of our people in refinement. But it must avoid the affectation of cosmopolitan folly. No single language

has any thing to do with cosmopolitanism ; its soul is the characteristic life of that one people.

"Any one setting about a new enterprise is not so much inclined to ask, Has any one ever attempted this before, or begun or finished the like ? The question is, Ought this thing to be done ? And the same is true of one who makes words. If he has proper regard for the fundamental laws of language, he is not open to blame. No carping critic is entitled to ask, Did any one ever say that before ? The question is, Ought this expression to be used ? Can not a better one be found ? For every living language advances, with an irresistible movement ; and grammarians and dictionaries come along in its track behind, judging of it.

"The maker of technical words ought to be an interpreter of the spirit which permanently governs the whole language. For this reason he must look back to the primitive times of the language, and must follow in the true path of its course of development. If, in investigating these original sources, he discovers any early-forgotten word, he should bring this into public notice and use again. To reproduce an ancient word, apparently dead, is a real increase and strengthening of the language. No word should be considered dead, while the language is not dead ; nor obsolete, as long as the language retains its youthful strength. Buried roots, which are still alive, and can throw out a vigorous growth of new stems, twigs, and leaves, bring blessing and prosperity. The shoots and sprouts of the old roots proclaim a new spring, after the long cold of winter. Thus the language will free itself from botching and patchwork, and will again become pure and strong. Without such protection of its original roots, the language will become overburdened, like a baggage-horse or beast of burthen, and must at last succumb under its heavy load of unsuitable additions. Every ancient word brought into use anew is an abundant fountain, which feeds the navigable rivers, digs deeper the mountain-valley, and indicates the coming of the floods. The word '*Turn*' may serve as an example. From this word have been formed, and are now in use, *turnen*, *mitturnen*, *vorturnen*, *einturnen*, *wettturnen* ; *Turner*, *Mittturner*, *Vorturner*, *turnerisch* ; *turnlustig*, *turnfertig*, *turnmüde*, *turnfaul*, *turnreif*, *turnstark* ; *Turnkunst*, *Turnkünstler*, *turnkünstlerisch* ; *Turnkunde*, *Turnlehre*, *Turngeschichte*, *Turnanstalt* ; and many others."

This preface is followed by a valuable and clear description of the separate Turning exercises, and of the games practiced ; and instructions on the establishment and organization of a Turning-ground.

After these come valuable general information and instruction on Turning institutions, teachers, &c. If the proverb is ever true, it is

true of Jahn, that the style is the man. Whoever would characterize him, must do it by giving matter from his works, in his own words. Accordingly, I give the following extracts from him :—

"The Turning system would re-establish the lost symmetry of human development; would connect a proper bodily training with mere exclusive intellectual cultivation; would supply the proper counteracting influence to the prevailing over-refinement; and would comprehend and influence the whole man, by means of a social mode of living for the young.

"As long as men here below have a body, and while a corporeal life is necessary to their earthly existence—which, if without strength and capacity, endurance and power of continued exertion, skill, and adaptability, becomes a mere inefficient shadow—so long must the Turning system be an important department of human education. It is incomprehensible how this art—so useful for health and life, a protection, a shield, and a preparation for war—should have been so long neglected. But these sins of an earlier rude and thoughtless time have now been more or less visited upon every man. And thus the Turning system is a subject of universal human interest, and is important every where, where mortal men live upon the earth. But still its special form and discipline must be peculiarly subject to the requirements of national and popular character. It must assume such a form as is given it by the time and the people; by the influences of climate, locality, country, and nation. It is intimately connected with people and fatherland; and must remain in the closest connection with them. Nor can it prosper except among an independent people; it is appropriate only to freemen. A slave's body is a constraint and a prison to a human soul.

"Every Turning institution is a place for exercising the bodily powers, a school of industry in manly activity, a place of chivalrous contest, an aid to education, a protection to the health, and a public benefit. It is constantly and interchangeably a place of teaching and of learning. In an unbroken circle, follow constantly after each other direction, exemplification, instruction, independent investigation, practice, emulation, and further instruction. Thus the Turners learn their occupation, not from hearsay, nor from following after some transient expression. They have lived in and with their work; have investigated it, proved it, demonstrated it, experienced it, and perfected it. It awakens all the dormant powers, and secures a self-confidence and readiness which are never found at a loss. The powers grow only slowly; the strength increases gradually; activity is gained by little and little; a difficult feat is often attempted in vain, until it is at last attained by harder labor, greater effort, and unwearied industry.



Thus the will is brought past the wrong path of obstinacy, to the habit of perseverance, in which is based all success. We carry a divine consciousness in the breast, when we realize that we can do whatever we choose, if we only *will*. To see what others have at last found possible, arouses the pleasant hope of also accomplishing the same. In the Turning association, boldness is at home. Where others are exercising in emulation with us, all exertion is easy, all labor is pleasure. Each at the same time strengthens the others by his labor, and confirms his own powers, and encourages and elevates himself. Thus the example of each becomes a model for the rest, and accomplishes more than a thousand lessons. No real deed was ever without result.

"The director of a Turning institution undertakes a high duty; and should approve himself thoroughly whether he is competent to so important an office. He must cherish and protect the simplicity of the young, that it may not be injured by untimely precocity. The youthful heart will be more open to him than to any one else. He will see, without concealment, the thoughts and feelings of the young, their wishes and tendencies, their impulses and passions, all the morning-dreams of youthful life. He stands nearest to the young; and therefore should be their guardian and counselor, their protection and support, and their adviser for future life. Future men are intrusted to his care; future pillars of the state, lights of the church, ornaments of the fatherland. He must be subservient to no temporary spirit of the age, nor to the condition of the great world, so often plunged in error. He who is not thoroughly penetrated with a childlike spirit, and national feelings, should never take charge of a Turning institution. It is a holy work and life.

"His reward will consist merely in the consciousness of having performed his duty. Old age comes more slowly upon us among the sports of the young. Even in the worst of times we can keep our faith, love, and hope when we see the fatherland renewing itself in the growth of the young. The teacher of Turning must abstain from pretenses; for every juggler can better deceive the outer world than he can.

"Good morals must be more implicitly the rule of action in the Turning-ground than even wise laws elsewhere. The highest penalty inflicted must always be exclusion from the Turning association.

"It can not be too often nor too deeply impressed upon the mind of every Turner, who lives such a life as he ought and who shows himself an able man, that no one is under heavier obligations than he to live a noble life, both in body and in mind. Least of all should he claim to be free from any requirement of virtue, because he is



strong of body. Virtuous and accomplished, pure and active, chaste and bold, truthful and warlike, should be his rules of action.\* Bold, free, joyous, and pious is the realm of the Turner. The universal code of the moral law is his rule of conduct. To dishonor another would disgrace him. To become a model, an example, is what he should strive after. His chief lessons are these: To seek the utmost symmetry in development and cultivation; to be industrious; to learn thoroughly; to intermeddle with nothing unmanly; to permit himself to be enticed by no seductions of pleasure, dissipation, or amusement, such as are unsuitable for the young. And such admonitions and warnings should be given in such terms as to insure a school of virtue from becoming one of vice.

"But, again, it should not be concealed, that the highest and holiest duty of a German boy or German youth is to become and to remain a German man; that he may be able to labor efficiently for his people and his fatherland, and with credit to his ancestors, the rescuers of the world. Secret youthful sins will thus best be avoided by setting before the young, as the object of attainment, growth into good men. The waste of the powers and years of youth in enervating amusements, animal riot, burning lust, and beastly debauchery, will cease as soon as the young recognize the idea of the feelings of manly life. But all education is useless and idle, which leaves the pupil to disappear, like a will-o'-the-wisp, in the waste folly of a fancied cosmopolitanism, and does not confirm him in patriotic feeling. And thus, even in the worst period of the French domination, love of king and fatherland were preached to, and impressed upon, the youths of the Turning association. Any one who does any thing foolish or insulting to the German manners or language, in words or actions, either privately or publicly, should first be admonished, then warned, and, if he does not then cease his un-German actions, he should be driven away from the Turning-ground, in the sight of all men. No one ought to enter a Turning association who is knowingly a perverter of German nationality, and praises, loves, promotes, or defends foreign manners.

"With such principles did the Turning societies strengthen, train, arm, encourage, and man themselves for the fatherland, in the gloomy, sultry times of the devil. Nor did faith, love, or hope desert them for a moment. 'God deserts no German!' has always been their motto. In war, none of them staid at home, except those too young and too weak—and they were not idle. The Turning institution, in those three years, offered up costly sacrifices; they lie upon the battle-fields, from the gates of Berlin even to the hostile capital."

\* These couples are alliterative in the original.—Trans.

It is difficult to select portions from Jahn's book for the purpose of describing him and his work, for all is characteristic; the book and author are cast in one mold.\* Its work is, in the fullest sense of the words, what it purports to be—a German Turning system, in which a system of gymnastic exercises, complete within itself, is set forth with sound judgment, vivid style, and correct tact. It is not a wearisome, methodical, elementary joint-gymnastics for dolls; nor does it treat exclusively of bodily exercises, but discusses with great earnestness the moral atmosphere of the Turning organization.

The Turning system soon spread from Berlin throughout Northern Germany, and a large part of Southern Germany. Turning excursions had much influence in producing this result. Next to Berlin, Breslau had the largest number of Turners—some eight hundred. At that city, students, Catholic and Protestant seminary pupils, the pupils of four gymnasia, officers and professors, frequented the Turning-ground. At their head were Harnisch and Massmann; while Director Mönnich (of Hofwyl) and Wolfgang Menzel, then students, were among the assistant teachers. Singing flourished. On Wednesday and Saturday afternoons, after exercising from three to seven, the whole company returned singing to the city. The first half of the four hours, Turning exercises was there used in the drill, and the other half in the other exercises, especially games; an arrangement which is better than to begin with the more inspiring portion of the exercises, and to end with the more serious and laborious drill.

Jahn's judicious distinction between the Turning school and Turning exercises is one that might well be introduced in other subjects.

For instance, in teaching singing, the first half of the lesson might be occupied in singing the scale, &c., and the other half with singing songs, &c., which he had learned before.

We very often hear much said, at the present day, of the opposition between an artificial organization and a human development. On this subject the mistaken opinion often prevails that the intelligent, efficient human will is, as a matter of course, counteracted by the course of historical development. But this is not the case; the question is only, Whether that will was in harmony with the development and tendency of the people, or not. If not, it is true that its only result is a vain endeavor to effect something. This was the case, for instance, when Brutus endeavored to free Rome by the assassination of Cæsar. But what one of God's commissioned mes-

\* Thus I have unwillingly left out Jahn's observations about national festivals, Turning schools, further exercises, costume, &c.

sengers can do, when in harmony with the age, is shown by Luther's Reformation.

It was one of the charges brought against the Turning system, that it was an affair artificially contrived, not a natural outgrowth. It is true that it grew quickly; fruits naturally ripen rapidly in hot weather. The period from 1810 to 1813, when Turning grew up, was certainly hot enough. Was the fire burning under the ashes all the time from 1806, which broke into a flame in 1813? Ever after the defeat of Jena, a deep grief was burning in the hearts of all German men and youth. The longing to free the beloved German fatherland, to renew its ancient glory, nourished among them a powerful mutual bond of the truest love. And the early Turners were among those included in this bond.

Their interested participation was nothing artificial, but merely the natural fruit of their earnest patriotism. This appears clearly enough from Jahn's account of the first beginning of the Turning system. It was this community of feeling and ideals which made the development of the art so rapid. There grew up, at the same time with it, a technical language, so appropriate that, instead of quickly going out of fashion, as artificial things do, it is at present, thirty-seven years after its appearance, entirely received and current.

Together with this first natural development of the Turning system, there came up also a reaction against many received and universal customs and manners. This necessarily aroused enemies, and the more because the Turners frequently overpassed the bounds of moderation, and made Turning identical with a warfare against all ancient errors. This was particularly the case after the war of freedom.

These errors did not escape the attention of the friends of the Turning system; and they endeavored to remedy them, whenever and however they could. This appears, for instance, from the following extract from an address to the students, delivered at the Wartburg festival, by a man whose liberal views are universally known; namely, Oken. He said: "Beware of the delusion that upon you depends the existence, and continuance, and honor of Germany. Germany depends only upon herself as a whole. Each class of men is only one member of the body called State, and contributes to its support only so much as its circumstances permit. You are yet young, and have no other duty than so to conduct yourselves that you may grow up aright; to train yourselves; not to injure yourselves by foolish practices; to apply yourselves, without permitting your attention to be diverted to any thing else, to this purpose which lies straight before you. The state is at present not concerned with

you; it has to do with you only in that you may hereafter become active members of it. You have no need of discussing what ought or ought not to happen in the state; it is only proper for you to consider how you shall yourselves in future act in it, and how you may worthily prepare yourselves to do so. In short, all that you do should be done only with reference to yourselves, to your life as students; and all else should be avoided, as foreign to your occupations and your life, in order that your setting out in life may not be ridiculous."

These words point out clearly the mistaken road by which the students afterward departed further and further from the right road. But they should not bear all the blame.

If a child has good and bad qualities, some people will look only at the former, and will foretell all manner of good of him; while others will see only the evil in him, and will prophesy an evil future for the child. But any one, who loves him truly, will consider how to cherish his good qualities, and to subdue his bad ones.

Such a child, with good qualities, but not without faults, was the Turning system. Passow, a man of honesty and benevolence, and of disinterested activity, looked almost altogether at its bright side, and in his "*Object of Turning*" (*Turnziel*) expressed hopes quite too great; it might almost be said that he spoke ill-luck to the child. Blame always follows excessive praise; praise must absolutely state the truth, must contain a just estimate of things.

My friend Steffens, on the other hand, saw only the dark side, the evils of the system; and he wrote his "*Caricatures*," (*Caricaturen*), and his "*Object of Turning*," (*Turnziel*), which was directed against Passow's "*Turnziel*." This talented man had lived all his life in the enthusiastic love of science and art; and this new system seemed to him to be cold and even inimical to every thing which he loved best. Jahn's rough, harsh, strong character was not agreeable to him; in the bitter censoriousness of many of the Turners, he naturally saw a hasty, presumptuous endeavor to improve the world; in their disrespect for many eminent men, unruly vulgarity; and in their German manners, only an affectation of them.

Thus there broke out in Breslau a violent contest between the friends and enemies of the Turners,\* which called out many other

\* This contest, in which I also took part, Steffens has described in his Memoirs. Steffens exercised a most profound and kindly influence upon my life; for which I shall forever be grateful to him. He was my instructor and my brother-in-law; and for eight years we lived as faithful colleagues together, in the same house at Breslau. And now suddenly we came into opposition to each other. Our lasting, and mutual, and heartfelt love was such that it can not be described how much we both suffered from this truly tragic relation. My friends at Breslau even advised me to leave the place. When Steffens visited me, eighteen years afterward, at Erlangen, we there quietly reviewed the evil days at Breslau. This, our last

publications besides Passow's and Steffens', only part of which would now have any historical interest. A work of permanent value on the subject is that of Captain von Schmeling, on Turning and the Landwehr; in which he showed how Turning was a valuable preparatory school for the training of the militia men.\* Harnisch wrote "*Turning in its Universal Relations*," (*Das Turnen in Seinen Allseitigen Verhältnissen*.)

In a dialogue entitled "*Turning and the State*,"† I defended Jahn and the Turning system from the charge of being Jacobinical, and of hate toward France; and, in some others, against those who charged it with being anti-Christian. But this controversy was warmly carried on in other places besides Silesia. Arndt wrote powerfully in favor of Turning.‡ The physician Könen, in Berlin, wrote upon its medical importance; § not to mention many other publications.

During this controversy, the Prussian government showed great and deep interest in the Turning system. A plan had even been prepared for the establishment of Turning-grounds throughout the whole kingdom. But on the very day when this was to have been laid before the king for his approval the news of Sand's murder of Kotzebue reached Berlin, and the approval was withheld. This was the first fruit of that unhappy deed.

Many years passed before Turning was again freely practiced in Prussia. In Wurtemberg alone it has been uninterruptedly maintained down to the present day. In Bavaria the present monarch, as soon as he came to the throne, took the system under his protection, and employed Massmann to have a Turning institution erected at Munich.

#### IV. TRAINING OF THE SENSES.

Rousseau, in "*Emile*," discussed the education of the senses.¶

earthly meeting, seemed to me to join immediately on to the early youthful intercourse of thirty-three years before; and I felt myself drawn to him by a love which had lasted through good and evil times, and which will outlive death, because it is stronger than death.

\* At a later period, in 1843, Dr. Münnich wrote "*Turning and Military Service*," (*Das Turnen und der Kriegsdienst*), in which he clearly stated the important relation between the two. W. Menzel, in his treatise, "*Bodily Training from the Point of View of National Economy*," (*Die Körperübung aus dem Gesichtspunkt der Nationalökonomie*), has earnestly recommended Turning, as a means of educating defenders of the fatherland.

† See my "*Miscellaneous Writings*," (*Vermischte Schriften*.) First printed in the Silesian "*Provincial Gazette*," (*Provincialblätter*.)

‡ "*Spirit of the Age*," (*Geist der Zeit*.) vol. 4, 1818. Reprinted with the title "*Turning; with an Appendix*," (*Das Turnwesen nebst einem Anhang*.) By E. M. Arndt. Leipzig, 1842. A most valuable work.

§ "*Life and Turning, Turning and Life*," (*Leben und Turnen, Turnen und Leben*) By von Könen. Berlin, 1817.

¶ A man of noble character and full of love for Germany and the German youth, Professor Klumpp, established the Stuttgart Turning Institution, and conducted it for many years. In 1842 he wrote his valuable treatise, "*Turning; a Movement for German National Development*," (*Das Turnen; ein Deutsch-Nationales Entwicklungs-Moment*.)

¶ I have gone more into detail on this point in my chapter on *Emile*, which see.

According to him, all the senses should be cultivated; the eye, in estimating magnitudes and distances, and in drawing geometrical figures; the touch, in judging by means of feeling, which the blind learn to do remarkably; &c.

In this department of gymnastics, Guts Muths substantially followed Rousseau. He assigned to the senses a remarkable office; namely, to "awaken, from the slumber of non-existence, the child, at first asleep in its quiet bosom." The emptiness and impossibility of Locke's opinion, that man is at first a mere sheet of white paper, is made very clear and evident by Guts Muths' expression.

"The soul of the young citizen of the world," says Guts Muths, in another place, "yet lies in the profound slumber which comes with it out of its condition of non-existence." The mind becomes at first susceptible of powerful impressions on the feelings; and then becomes more and more awakened, and capable of more and more delicate impressions. "But, as the gradations of impressions on the senses, from the most violent to the most delicate of which we can conceive, are immeasurable, so is the refinement of our susceptibility to such impressions also possible to an immeasurable degree." All the life long, the mind is becoming constantly susceptible to fainter and fainter impressions; that is, more awake."

Guts Muths' idea of training the senses is thus the sharpening of them; as also appears from the examples of it which he gives. The boys are made to shut their eyes and feel of letters, figures, the devices on coins, &c. Seeing must be trained by cultivating the vision of small things and distant things. The children are "to follow Nature even to her minutest objects, even those scarcely visible to the eye." "The pupil," he says, "should observe not only the coarser parts of flowers, but his eye should pierce even their minutest portions. He should study the absorbent vessels, the structure of the skin, the bark and leaves of trees, many kinds of seeds; the reproductive organs of plants, the pollen, anthers, &c." He should be able to recognize a flower or a stone at thirty paces, and a tree at from a hundred to a thousand paces. His ear should be trained not only by music, but "he should observe the sound of laden and empty vehicles, of the squeaking of doors," &c. If the keenness of the senses, their susceptibility, were the measure of their improvement, those who are disordered in their nerves would surpass the most practiced senses of the healthy. They are annoyed by the least and most distant noise; and distinguish its exact nature only too well. If the pupils of Guts Muths could distinguish by the touch, with their eyes closed, between gold and silver coins, this was far outdone by a sick person, who



became uneasy when any one, even without his knowledge, brought a silver spoon near him.

The American Indians, as is well known, whose mode of life is little better than that of animals, surpass most Europeans in the keenness of their senses; and thus, according to Rousseau and Guts Muths, the Caribs and Iroquois should be valued as our models. They might equally as well have proposed the eyes of a lynx, the nose of a hound, &c., as ideals. I have expressed my views already upon such doctrines as to bodily training, particularly that of the senses, in the following aphorisms, in which I have described an ideal of the cultivation of the senses.

The ancient legends clearly expressed the difference between mere animal strength of body and the human intellectual strength of body, by making their giants—huge, stupid, uncouth masses of flesh—be conquered by knights, smaller in body, but of keener intellects. Are then tigers models for springing, apes for climbing, and birds for flying? are they inaccessible ideals, to which the gymnast should look up with resignation and longing? We might like very well to fly, but not in the form of a crow or a stork; we would be angels. We would prefer to live imperfect, in a higher grade of existence, with the sense of capacity for development, than to fall back into a more complete but lower grade, behind us and below us. Cesar despised being the first man in a small village, because he felt himself capable of being the first man in Rome. In like manner, the Turning system contemns a lower animal development, because a higher human one is accessible to it.

If the eye were only a corporeal mirror of the visible world, it would represent equally well or equally ill the most different things, according to the bodily health and strength, or sickness and weakness, of its condition. But it is an organ of intellectual susceptibility; of not only a bodily but also an intellectual union with things. And accordingly it is a well-grounded usage in language by which we say "to have keen eyes;" and "to have an eye for" particular things, such as plants, animals, &c. The former indicates bodily health and strength; the latter points to an original spiritual relation between the eye and certain things, trained by close study.

The same is more or less true of the other senses. The art of cultivating the senses has only to a very small extent any thing to do with what increases their corporeal strength—as, for instance, with medical rules for taking care of and strengthening the eyes.

It has much more to do with the cultivation of the intellectual susceptibility of each of the senses. Therefore it begins not with



the arbitrary, one-sided cultivation of one sense, which tends to diminish the susceptibility of the others; and still less does it direct one sense arbitrarily to one single class of objects, as the eyes to plants or animals exclusively. For this would cripple the intellectual application of the senses to things of other kinds. But if the teacher has begun, as the universal microcosmic character of every well-organized child requires, with as general a cultivation of all his senses as is possible, and then observes a prominent and stronger activity in one sense, or an especial applicability of it to some one department of the visible world, as of the eye to minerals, &c., then only may he undertake the cultivation of that one sense or susceptibility, as a peculiar talent.

If now the intellectual senses are supplied by the external senses with an abundance of intuitions of all kinds, the impressions thus received gradually ripen, and desire to be brought to the light of day. Thus a little child speaks words which it has often heard its mother use, then sings what it has often heard sung, and tries to draw what it has often seen.

With every receptive organ nature has coupled a producing or representing one, or even more; in order that man may not be solitary in the midst of his inward wealth, but may communicate with others. He can, in many ways, represent a known object, whose picture is visible to his mind; he can describe it in writing, act it, &c.

The development of the susceptibility to impressions must naturally precede that of the power of representing. Hearing must precede speaking and singing; seeing, painting, &c. There exists a sympathy, as is well known, between the susceptible organs and the corresponding representing ones; of the organs of hearing with those of speech, of those of vision with the hand, &c. The use of the receiving organs seems to produce a secret, quiet growth of the representing ones, though these latter be not directly practiced.

In many trades, the apprentice is made to look on for a whole year, before putting his hand to the work. When his eye thus becomes intelligent, the hand follows it sympathetically. It is to be wished that the example might be followed in all the cultivation of the senses.

The teacher who tries to cultivate receptivity and power of representing together, who requires the pupil to furnish an expression immediately after the impression is made, mistakes Nature, who requires a quiet, undisturbed condition of the senses for their receptive office, and usually a slow development of the power of representing.

It is said of some of the North American Indians that the development of their senses furnishes, for those who would combine them

with bodily exercises, a model which never can be equaled. It is true that, according to the accounts of travelers, they surpass Europeans in keenness of sight, hearing, and smell. But are they therefore models of the cultivation of the senses?

This is confusing the idea of a human cultivation of the senses with an animal one; corporeal perfection of the senses with intellectual. The preceding observations have shown how different these are; examples will make the difference still more evident.

There are many men who have hearing so keen as to distinguish faint sounds at a very great distance, but who have no feeling at all for pure or beautiful music. There are most accurate piano-tuners and music-masters, who can distinguish every fault in any instrument amongst a full orchestra; but who, notwithstanding this fineness of ear, are so destitute of an intellectual ear for music as to prefer the most vulgar sort of it.

There are, again, others who can not tune any instrument accurately, and still less guide an orchestra; who are inspired by good music, and show distinct dislike to bad. Contrast with these keen and delicate hearers, Beethoven, who was almost deaf; and, again, there was another great harmonist, who said that perusing the score of a composition gave him more pleasure than the execution of the music, because the latter never equaled his ideal. He was thus capable of intellectual musical pleasure, even had he been completely deaf.

The case is similar with the eyes. Among my mineralogical pupils, I found some with very healthy bodily organs, who could perceive the smallest objects, and still were incapable of comprehending forms, of distinguishing like from unlike; in short, they had eyes, but did not see. On the other hand, there were others, whose eyes were weak, and who were as it were blind to small crystals, but who felt all the beauty of the larger ones, and closely followed all their varieties of color. So, I have known exceedingly short-sighted young men, who still had the greatest taste for pictures. And, again, there are many very keen-sighted persons, who gaze without emotion on the most magnificent pictures, sculptures, and churches.

The great distinction between the bodily and the intellectual senses might be illustrated by many other examples.

Surely these animal sharp eyes and ears of the Indian are not our models. It is the spiritually-illuminated eyes of a Raphael, a van Eyck, an Erwin von Stein, the divinely-consecrated ears of Handel and Leo, which are the noblest specimens of the cultivation of the human senses, which are the divine models for men.

Regard was had in the schools to the cultivation of the senses quite a long time ago; or at least so it would appear. So-called "Intuitional Exercises" were introduced; Pestalozzi giving them an impulse, especially in his "*Book for Mothers*." "The child," says Pestalozzi, "and indeed man universally, must be first made acquainted with what lies next him, before he can attend to the acquiring a knowledge of what is further off. The nearest visible object to the child is his own body, and this he should first of all observe, under the direction of the mother. She must, with him, follow the '*Book for Mothers*,' step by step, going through every division and subdivision of it, step by step, to the furthest details."

Thus, for instance, we find in that work:

"The first joint of the middle toe of the right foot. The middle joint of the middle toe of the right foot. The last joint of the middle toe of the right foot. The first joint of the middle toe of the left foot. The second joint of the middle toe of the left foot. The last joint of the middle toe of the left foot.

"My body has two limbs above and two below.

"My two upper limbs have two shoulders, two shoulder-joints, two upper-arms, two elbows, two elbow-joints, two fore-arms, two wrists, and two hands.

"Each of my two upper limbs has one shoulder, one shoulder-joint, one upper-arm, one elbow, one elbow-joint, one fore-arm, one wrist, and one hand.

"My two hands have two wrists, two palms, two thumbs, two fore-fingers, two middle fingers, two ring-fingers, and two little-fingers.

"Each of my two hands has one wrist, one palm, one thumb, one fore-finger, one middle-finger, one ring-finger, and one little-finger.

"My two palms have two balls of the thumbs; each of my two palms has one ball of the thumb."

"My two great toes have four joints, two front and two back; four knuckles, two front and two back; and four joint-lengths, two front and two back.

"Each of my two great toes has two joints, one front and one back; two knuckles, one front and one back; and two joint-lengths, one front and one back.

"The ten fingers of my two hands have twenty-eight joints, ten first, eight middle, and ten last; twenty-eight joint-lengths, ten first, eight middle, and ten last; and twenty-eight knuckles, ten first, eight middle, and two last.

"The five fingers of one hand," &c., &c.

It is evident how infinitely wearisome and unnatural such a mode of observing and naming over all the parts of the body must be, both

to young and old. And it is an error to take his own body as the first object which comes under the notice of the child. Without some natural or artificial mirror, man would not see his face, and some other portions of his body, all his life long. A child is much more attracted by objects which stimulate his senses by color, brightness, smell, or taste. He would very much prefer cherries or apples to "the middle joint of the little toe of the right foot."

Several detected Pestalozzi's error. But, taking his principle as true, that it is necessary to begin with what is nearest at hand, they took subjects from the school-room; and the doors, windows, walls, seats, and desks were observed, described, and named, down to their smallest parts. I give an example.\*

"The school-room and what it contains.

a. Enumeration of objects contained in and about the school-room.

1. Without detailed definition.

2. With detailed definition; as, immovable, movable, simple, compound, how compound? within reach; necessary; accidentally pertaining to the room.

b. Use of articles in and about the room.

c. Description of individual things, by their color, their form, their parts, the connection of their parts.

d. Materials of which the separate things and their parts are made."

The description of the windows alone fills two closely-printed pages.

It says, among other things:

"The teacher should now have each of the separate parts of the window given in their order; as, the panes, the sash, the putty, the pulley, the button, the catch, the sash-bolt; lastly, the whole window, the window-frame, the molding. \* \* \* Thus the whole window has been analyzed, and its parts considered. It only now remains to reconstruct it."

It would be much better, instead of all this wearisome, pedantic enumeration and hyper-pedantic reconstruction, to say, "The windows in the school-room are long and four-sided."

That such a methodical and wearisome method of instruction would throw active children either into despair or sleep, is clear. They had better jump about over the desks and seats in sport, than to describe them in this insufferably-affected way; they had better analyze perhaps not a whole window, but now and then a pane, in their play, and let the glazier "reconstruct" it, than to analyze and construct it in words.

It is a pity that something can not be found to use as a subject of instruction in the school besides what the boys naturally learn in

\* From Denzel's "System of Education," (*Erziehungsehre*), 3, 22.

their own experience. They know the windows, and seats, and desks, without any teaching; and will never call a desk a seat, or the contrary. For what purpose should he consider separately, and name, all the parts of the window; the pulley, the catch, the sash-bolt? What interest have they in these? Such details and names may be left to the glazier, the carpenter, and the locksmith. Every trade is a little separate people, with a peculiar language; but all these separate people understand each other, not in their trade-language, but in the language of their country. The trade-language belongs to the peculiar employment of each trade; each one has to do with many things which have no concern with the others, and can not concern them, unless they neglect their own business. And fellow-tradesmen discuss the matters of their trade, in their peculiar trade-language.

Justus Möser, who had an eminently sound understanding, says,\* "My miller played me yesterday a comical trick. He came to my window and said that 'there must be four iron nuts on the standards and standard-pieces, opposite the crank; and all the frames, boxes, bolting-cloths, and springs wanted fixing; one of the iron post-belts will not work any longer with the shifting-piece, and ——.' He spoke German, my friend, and I understood well enough that he was talking about a windmill; but I am no windmill-builder, to understand the thousand details of a mill, and their names. But at that point the knave began to laugh, and said, with a queer gesture, that the pastor did the same thing on Sundays; that he spoke nothing but learned words, that took the very hearing and seeing away from the poor people; and that he would do better, he thought, to do as he (the miller) did, and furnish good meal to the parish, and keep his terms of art for architects."

The application to this sort of "intuitional instruction" is clear; and is doubly forcible because the teachers are not architects, and only affect a knowledge of these technical matters.

A remark of Herr Roth is very true, and very applicable to the present object. He says, "There are many things which, when rapidly discussed, on a proper occasion, are interesting to children; when, if studied by the hour, and methodically taught and reviewed, they would be most wearisome to them. To ask, cursorily, What is the difference between this table and that one? is very well; but to be staring at tables and desks, year in and year out, and describing them, is quite another thing."

The word "stare" is precisely appropriate; the exercise is a lifeless and forced one. The window and its parts are reflected in the staring eyes of the stupified and wearied child; and his lifeless

\* "*Patriotic Fancies*," (*Patriotische Phantasien*), 3, 963.

repetition of what the teacher says over to him corresponds with the lifeless reflection in his eyes.

Close consideration will show that this sort of instruction is much more an exercise in language than of the senses, although one of the most unintellectual kind. The intuition in the case is only to give the teacher an opportunity to talk; and accordingly it makes little difference what the object exhibited is, whether a picture by Raphael or a tavern-sign, the Strasburg cathedral or a wretched stable. Words can be made about any thing and every thing. The inquiry is scarcely made, Whether any knowledge is gained by the intuition; and not at all, Whether a permanent remembrance is insured of the thing shown. Very few seem to have an idea how quiet, undisturbed, and often-repeated the bodily intuition must be, in order to the obtaining of such a recollection, for the mental assimilation of the thing shown; and how the pupil's words should be only the product of this assimilation. No one seems to consider this process of real generation of words. A piece of gypsum is shown to a boy; he is made to repeat three times, "That is gypsum;" and then the specimen is put aside, and it is fancied that the boy has an actual knowledge of gypsum.

It will now be asked, Should intuitional exercises be quite omitted in school? I reply, Such wooden, methodical exercises on desks and seats may be omitted, as may all drilling merely for the sake of the drill; and, further, so may all drilling that is to give practice in nothing except the mere use of words.\* The hunter, the painter, the stone-cutter, &c., do not train their eyes, nor does the musician his ear, for the sake of training it. Children, properly instructed in natural knowledge and in drawing, will be sure to use their eyes; and, as they penetrate further and further into their subject, they will, in the most natural manner, arrive at an increased accuracy of expression for the objects which they perceive by their senses.

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\* Children are frequently found, especially in the common schools, who are as if dumb. How shall they be made to speak? I would recommend that they should be spoken to, not in a stiff school-fashion and school-tone, which would make them stupider than ever, but, as far as possible, in an entirely usual manner and tone, and on some common subject, which they understand, and on which questions may be put to them. Tables and desks may be used for this purpose, but not methodically analyzed.



## XI. PROGRESS OF EDUCATIONAL DEVELOPMENT.

[Translated from Raumer's "*History of Pedagogy*," for the *American Journal of Education*.]

### I. PEDAGOGY.

HISTORY has made us acquainted with the very different eminent educators of the last century. We have seen that each of them had an ideal which he sought to attain; a more or less clear conception of a normal man, who was to be produced from each child, by his method of education.

Bacon defined art, "Man, added to things." A man, that is, who prints upon things the impress of his mind. Does the art of education come under this definition? Certainly not; for we should have to consider the children to be educated as mere material, upon which the educator is to impress his ideal, as the stone-cutter does on a block of marble. But we might define the art of education, very generally, in analogy to Bacon's definition, thus: "Man added to man."

In order to a correct understanding of this last definition, we must see clearly how it is related to the various ideals or normal men of the educators. Did not each of them, either consciously or unconsciously, seek to determine an ideal of the human race; a generic ideal, including all individuals; and would he not educate every child according to his generic character and ideal?

God is the educator of the human race. Man is created by him, and for him; the beginning, progress, and perfection of humanity are his work. And if the teacher would have his work endure, he must look to God's system of "education of the human race." But it will not suffice for the educator to look to the generic character and the destiny of humanity only; he must regard another point. Every child is born with bodily and mental peculiarities, which sharply distinguish it from all other children, although they all have the generic character. No two children were ever entirely alike; each one is an entirely peculiar, personified organism of natural endowments; a completely individual and personified vocation. An invisible and mysterious master forms each of them according to a separate ideal: a master who does not, as human artists do, first fashion his work and then neglect it, as something entirely separate from himself; but who continues to work within man, even until his death, to the end that he may become like his prototype, and may fulfill his vocation.



God cares for each individual with the same paternal love as for the whole human race.

The vocation of the educator is to become a conscientious and obedient fellow-laborer with the divine Master; to endeavor to know and to help forward the perfection of that ideal for whose realization the master has already planted the seed, the *potentia*, in the child. I repeat: The educator must look to His work, if his own work is to stand; that is, not to the scarcely-comprehensible work of God upon the whole human race, but to his work within every individual child to be educated.

God formed man after his own image; but, after the fall, it is said that Adam "begat a son in his own likeness, after his image;" not after the divine; flesh born of flesh, a human child, perverted from God. During all the thousands of years which have passed since Adam, only one child has lived who was sprung immediately from on high, and who, of his own power, grew in knowledge, in stature, and in favor with God and man; and who needed no education, but only care. All other men are invariably sinners from their youth up; and in all the image of God is removed away.

The purpose of all education is, a restoration of the image of God, with which the new birth begins. "This is the work of the regenerating, creating power of God, (*ἐκ θεοῦ γεννηθῆναι*;) and, although a mystery both in its origin and in its aims, (John iii., 8,) works upon the earth in a visible and unmistakable manner—a new creation, a new man."\* The mystery of its origin is the mystery of the sacrament of baptism, "the bath of regeneration." After that period there are two powers within the child, who commence the strife between the spirit and the flesh, the old and the new man; a strife of regeneration, which endures even to the end of life.† Parents and teachers are the auxiliaries of the child in this contest. The problem of Christian pedagogy is, lovingly and wisely to watch, pray, and labor, that in the child the new man shall grow and be strengthened, and that the old man shall die.

Thus it is that we understand the term "man added to man."

But the church theory of baptism has been attacked; and, in our own times, anabaptist views have become widely disseminated. Many see, in baptism, only a symbolical act, by which the baptized

\* Harless, "*Etica*," 77.

† Larger Catechism. "The power and work of baptism are: the mortification of the old Adam, and afterward the resurrection of the new man. Which two are in progress throughout all the life; inasmuch that the Christian life is nothing else than a daily baptism, begun once, but always in progress."

And J. Gerbard says, "Infants, in baptism, receive the first fruits of the spirit and the faith."

is preliminarily received among the members of the Christian church, without becoming one truly and actively, because he is yet inexperienced in faith. It is by confirmation that he becomes consciously an acting member of the church. To admit a grace of baptism, it is said, is to admit a magical operation of the sacraments.

On this subject I refer to the dogmatic theologians, especially to Luther; and shall here only observe as follows.

The difference respecting baptismal grace seems to proceed chiefly from the opinion that, if grace passes from God to man, the latter can not be entirely passive; but that God can not confer a spiritual gift, unless the recipient shall receive it with intelligent consciousness.

Let us turn for a moment from spiritual to natural endowments. Is it not a proverb that "Poets are born?" Must it not be confessed that, in the new-born infant Shakspeare, the *potentia*, the seed, of the greatest creative talents the world ever saw was slumbering, quiet and unobserved, just as there was once slumbering, in a small acorn, the *potentia* of the mighty oak of a thousand years, which now stands before us? And might we not reply to the masters in Israel, who doubt the existence of this *potentia*, "Ye do err, not knowing the power of God?" For to whom belongs the glory? Was the poet the intentional production of his parents? And could not God, who in so profoundly-mysterious and incomprehensible a manner blessed their union, confer an equally wonderful power upon the sacrament which he ordained?\*

Although I refer to dogmatic writers for the details of this theory, yet I may here observe that it is of the utmost importance to theologians. If Christian parents believe in the actual beginning of a new and sanctified life in their child, if they see in him a child of God, in whom the Holy Ghost works, they will educate him as a sanctified child of God, will teach him early to pray, and will make him acquainted with God's Word. But if they do not believe that the seed of a new life is in the child, if they consider him a "natural man, who receives nothing from the spirit of God," and as incapable of faith, they will proceed according to whether they are Christians or not. If not, they will bring up their child as a natural child of Rousseau's kind; a heathen child, in a heathen manner. But if they are, as is the case with baptists and anabaptists, they will still see in the child a heathen, but one who can early be brought to Christianity, by the Word, and by awakening addresses. In this manner they think of themselves to bring about the new birth, instead of considering,

\* The unworthy manner in which the sacrament is often administered causes many to err. But if the king should send us a magnificent present by a foolish servant, incompetent to estimate it, would that diminish the value of the present?

as do the believers in the church's theory, that the care of the seed of a new life, planted in the child by baptism, is the office of education.

## II. PELAGIAN PEDAGOGY.

I have mentioned Rousseau. We have learned to consider him the true representative of that system of pedagogy which I shall, for brevity, call Pelagian—or even hyper-Pelagian. "Every thing is good," begins "*Emile*," "as it comes from the hands of the Creator; every thing degenerates, in the hands of men." These words he uses, not of Adam before the fall, but of every new-born son of Adam, born of sinful seed. And he says, in another place, "The fundamental principle of all morals, upon which I have proceeded in all my writings, and have developed in *Emile* as clearly as I could, is, that man is by nature good, a lover of justice and order; that no inborn perverseness exists in the human heart, and that the first impulses of nature are always right."

Thus he distinctly denies original sin, and would disprove the words, "That which is born of the flesh is flesh; flesh and blood can not inherit the kingdom of heaven." While the Christian teacher seeks for reformation, for the destruction of the old man, and the quickening and growth of the new, Rousseau recognizes only one, the old man, whom he himself calls the "natural man." Him he would develop and watch over; and would dress him out for baptism with borrowed Christian adornments, although he ignores Christianity, and congratulates himself on the fact that his child of nature belongs to no religion and no church.

We have seen to what absurd conclusions Rousseau was pushed by this unchristian premiss; to what unnatural views, by his constant reference to nature; to what sophistries, by his attempt to show that all wickedness is first implanted in the child, originally as pure as an angel, by adult persons. Luther's sound and healthy pedagogy is precisely the opposite of Rousseau's. The comparison of the two must convince any one that the division of educators into Pelagian and anti-Pelagian is a fundamental one, and of the greatest practical importance.

## III. RE-ESTABLISHMENT OF THE IMAGE OF GOD. HUMAN TRAINING.

Christ said, "Be ye perfect, even as your Father in heaven is perfect." Thus he places before us the very highest ideal; and reminds us of that lost paradise where man retained the uninjured image of his prototype. And thus we take courage to "press toward the mark for the prize of the high calling of God in Christ Jesus."

Christian training seeks the re-establishment of the image of God;

by raising up and faithfully guarding the new man, and by the death of the old. The process of the re-establishment is one both of building up and of destroying; positive and negative; and this in relation to

- a. Holiness and love.
- b. Wisdom.
- c. Power and creative energy.

#### IV. EVIL TRAINING.

While a right training, such as is pleasing to God, seeks such a re-establishment of the image of God in man, that the new and heavenly man shall become a power within him, and the old man shall die, there is still, on the other hand, a false and devilish training,\* a miseducation, a caricature of education, which is not satisfied with our inborn sins, but which also proceeds to destroy the young by naturalizing bad instincts in them, or even by a methodical course of corruption. The ideal objects of this miseducation are to destroy the seed of grace in the new man, in the child, and, on the other hand, to encourage and protect the old man, the man of sin, until he shall rule, alone and uncontrolled.

Fearful evils grow out of such a state of things. All manner of warnings away from this destructive path should be given; and to this end we should give diligent attention to discipline in the Lord, to delay, to education, and to miseducation.

#### V. (a.) RE-ESTABLISHMENT OF HOLINESS AND LOVE. CHRISTIAN ETHICAL TRAINING.

Man fell, from pride; because he would be not merely like his Maker, but equal to him, instead of obeying him in childlike love. In the place of love of God, there thenceforth prevailed in him a delusive self-conceit and self-love; and, in order that he might not thus go entirely to ruin, God reserved for himself a place in him, by a conscience, powerfully corroborated by the death of the wicked. This was man's dowry, when he was driven out of Paradise; his protecting angel, powerful against his original sinfulness, who ever, against his own will, kept him humble in the fear of God, which is the beginning of wisdom; and was his inward taskmaster, to drive him to Christ. Afterward, the law was put over him, as a severer taskmaster; to awaken his sleeping conscience, and to direct him when going astray.†

In the fullness of time appeared Christ, to reconcile fallen man to

\* "We are justly given over to that ancient wicked one, the master of death, because he has persuaded our will into the similitude of his will, which is not established in the truth."—Augustine's *Confessions*, vii., 21.

† Romans, ii., 14—17.

God, and to re-establish the kingdom of childlike obedience and love.

The explanation of each of the ten commandments, in the smaller Lutheran catechism, begins with the words, "We must fear and love God." This is to awaken the conscience of the child, and to impress upon him the fear of God; but love is joined with fear. In these two words are contained the law and the gospel, the Old and New Testament presentations of the commandments. Conscience and the law continually remind sinful man of God's holiness and justice, and drive him to repentance. But the most anguished conscience will find peace in looking to the forgiving love of Christ; in faith in him who beareth the sins of the world.

The Holy Scriptures repeatedly point us to the holiness, justice, and love of God as our model. "Be ye holy, saith the Lord, as I am holy." "Be merciful, as your Father in heaven is merciful." "Beloved, if God so loved us, we ought also to love one another." But Christ includes all in the words "Be ye perfect, even as your Father in heaven is perfect."

Thus, we repeat, He admonishes men to return to God; to re-establish their original likeness to him; and He, who is "the brightness of his Father's glory, and the express image of his person," the beginner of our faith, as he will be the finisher of it, will not neglect the work of his hands. The hour of his death was the hour of the birth of a new world, victorious over sin and death, loving and well-pleasing to God. After His return to his Father, he sent us the Holy Ghost, to complete the work which he had begun in the hearts of men, and to extend the kingdom of God over the whole earth. He, the educator of the human race, is the master of all teachers; he must guide them in all truth, must bless their labors, and teach them to pray. Only under his guidance can a Christian ethical training prosper, the image of God be renewed in the child, holiness and love planted in his heart, and wickedness and unlovingness rooted out.

#### VI. ANTI-CHRISTIAN AND IMMORAL MISEDUCATION.

But who can enumerate the manifold offences of parents and teachers, against the rules of a Christian ethical training?

The conscience of children is laid asleep instead of being awakened, and sins are treated as pardonable weaknesses.

In the place of a godly conscience is even planted a lying spirit; a devil's voice is placed in the hearts of the children. Thus, there is held up before them, as the highest object of attainment, not acceptance with God, but the false and deceiving glitter of honor among men; notwithstanding the warning voice of the Lord, "How can ye

believe, which receive honor one of another, and seek not the honor which cometh from God only!" How often must we hear it said, What will people say? Foolish parents refer their children to "people" as the highest tribunal; to the customs of the multitude who are walking on the broad road which leadeth to destruction; instead of early impressing upon them the bold expression of the apostle, "For what have I to do to judge them also that are without?"

A similar practice is that of teaching children to put on a hypocritical behavior before people, to assume rootless and lifeless pharisaic virtues, such as will pass current with those who do not look for any ethical basis of action, and with whom the show will pass for the substance.

If we follow the life of the fleshly minded, back to their youth, we shall very often discover many serious faults in their parents. The first seeds of the dominion of the flesh in them were often planted either by the unjustifiable neglect of their parents or by actual positive misleading. Who can describe the influence upon a child's soul of vile loose dances, of vulgar plays, of reading bad romances? How often have cards and lotto during childhood originated the subsequent fury for gaming; and how often have deluded parents taught these dangerous games to their children!

Many things might be said of the bad examples set before children by the thoughtless and even wicked remarks which they hear grown persons make.\* But enough has been said to explain the meaning of the term "anti-Christian, immoral miseducation."

#### VII. RE-ESTABLISHMENT OF WISDOM. INTELLECTUAL TRAINING. WRONG WAYS.

With sin is closely allied error; deviation from true ways. Adam's naming of the beasts in Paradise indicates the profound and godlike power of mental penetration which he possessed before the fall. For it is said that, as the man named them, "that was the name thereof." This divine approbation of Adam's nomenclature showed that the names were competent to express the natures of the various animals; and would certainly not have been bestowed upon the names which modern science has arbitrarily invented and bestowed on them.

But the restoration of this primitive innocent wisdom is an object to be sought after. It is the object of all intellectual training; and is intended to destroy error, and lead to the real truth; just as it is the office of Christian ethical training to destroy sin, and to lead to virtue by faith.

As conscience may be considered a correlative of original sin, so

\* "The utmost reverence is due to the young; if you are meditating any thing vile, disregard not their tender age." How many Christians does Juvenal put to shame!



the reason may be considered a correlative of original error; as an intellectual conscience; an organ of intellectual self-knowledge.

Defenders of Christianity have said much against the reason; and quite as much might be said against the conscience. We have seen that in men, instead of the true conscience, the voice of God, there may enter a false conscience, the voice of the devil, betraying into all evil. In like manner the reason may become false, especially through pride. When not thus distorted, it represents God's truth in man, as the conscience does God's holiness and justice.

"The reason," says Hamann, "is holy, right, and good; but it can produce nothing except a conviction of the universality of sinful ignorance." Thus, the right reason will make us humble; and points sinful, ignorant man to a holy and all-wise God. Through an unholy, wrong, and wicked reason, on the contrary, comes, on one hand, the boundless presumptuousness of pretending to know absolutely, to recognize truth as God does; or, on the other hand, a doubt of all recognition of truth, a proud and cold acataleptic condition. The good and holy reason of a Christian applies itself, under the Holy Ghost, to that learning which guides into all truth. In this school—the school of humility—it learns to know its intellectual limits; and the boundaries between the regions of faith and of sight. It recognizes the fact that, since the fall, man has been in the "region of dissimilitude," and distinguishes between that which is given him to know and that which is the subject of faith; those incomprehensible mysteries whose essence God alone understands, because he is that essence.

Absolute truth, as it is in God, is just as inaccessible to man, as long as he is imprisoned within his earthly tabernacle, as is absolute holiness. He who asserts that he possesses the absolute truth must also mean that he is absolutely and completely holy; and armed with divine power.\* "Knowledge, and power, and holiness are identical."

A strife for wisdom, analogous with the strife for holiness, lasts every man his lifetime, in the pursuit after truth.

There is also an intellectual miseducation, analogous to the ethical one, in men perverted and turned away from God. Puffed up with a conceit of wisdom, they are deceived as to the limits of it. They also mistake the giver of all knowledge; do not ask him for wisdom; do not thank him for the intellect which he has given them; for they think all knowledge the fruit of the powers of their own minds. But their labor, which is not performed in God, which seeks not the

\* Not that every truth is merely apparent, and is uncertain; but that every truth contains something entirely comprehensible, and at the same time something entirely incomprehensible. This is true even of the profoundest essence of mathematical truth—of its ultimate base. See the chapter entitled "*Mysteriously Revealed*."



glory of God, but of themselves, is a servile labor, without a blessing and without peace. This is unfortunately the character of the usual scientific labors of the present day; and this perverted belief in so many learned men has a most powerful and most evil influence on the instruction of the young. Vanity impels the learned men; they impel the young by vanity, and lead them to make a show before people with what they have learned. Thus it happens that all pleasure in what they learn, and the mode of learning it, is entirely driven away, and replaced by an idle pleasure in the praise of men; and all which is cursed by such vanity must of necessity wither away. While both old and young, teachers and scholars, are, like Narcissus, foolishly burying themselves in a vain self-admiration and self-respect, still others fall into the same snare, by devoting to ungodly scientific labors their whole lives, words, and actions. Students of nature, wholly absorbed in the creature, ask not after the Creator; but live in a modern heathenism; and philologists, neglecting every thing that is Christian, worship false gods with the ancient classics. Such errors as these have a destructive influence on youth.

I have elsewhere discussed various other errors, both of teachers and of the lawgivers of pedagogy.

#### VIII. RESTORATION OF THE HUMAN POWERS.

Man is to "have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth." This dominion was that of the image of God, in the name of God; peacefully recognized by all creatures. Thus the painters place Adam and Eve in Paradise, at peace with the lions and tigers around them. But when man became disobedient to God, the creatures became disobedient to him; for they had revered him only as the viceroy of God.

There, however, remained to man a species of dominion, even after the fall. "And the fear of you," said God to Noah, "and the dread of you shall be upon every beast of the earth, and upon every fowl of the air, upon all that moveth upon the earth, and upon all the fishes of the sea; into your hand are they delivered."

But this was not the original peaceful dominion; it was a dominion of fear and terror. And a commandment of fear came also from the Lord. As he had before the fall given man all manner of herbs, and the fruit of trees, for food, so he said, after the flood, "Every moving thing that liveth shall be meat for you; even as the green herb have I given you all things."

Therefore, even to the present time, the dominion of fallen man is such over the beasts, that they fear him, as rebels do the power of

their ruler; and his weapons, still more than his divine image. But the prophecies in Isaiah of a future time, when a young child shall lead a lion and a lamb together, and when the sucking-child shall play upon the cockatrice's den, point to a restoration of this human dominion over the beasts. Daniel in the lions' den, and Paul, whom, according to the Word of the Lord, the viper did not injure, are the forerunners of that dominion which man shall again possess, not by the power of his weapons, but by faith.

The passage of the Israelites through Jordan and through the Red Sea, the powerful prayers of Elisha for and against the rain, Christ's stilling of the storm by the words "Peace; be still," and his walking upon the sea—all these point to a future dominion of man over inorganic nature also; a moral dominion, in the power of faith, in the power of God.

The various healings of the sick point to a similar future power.

But, it may be said, all that we are saying relative to the restoration of human powers is simply arguing from a miraculous past to a miraculous future.

It is true that at present we have only the shadow of that past and future time; and it is only with that shadow that we have at present to do.

Thus thought the most judicious of philosophers, Bacon, when he said, "Knowledge and power are the same" (*Scientia et potentia hominis coincidunt in idem.*) In proportion as man knows nature, he rules it. Bacon every where requires, not merely a theoretical knowledge, but a practical, efficient power. With all theoretical knowledge of nature there goes also a practical art; an art of operating upon nature, mostly based upon scientific knowledge.

Thus we do in fact rule the creation, not by the mental magic of words, strengthened by faith; but we make it serviceable to us by searching into the nature and powers of different creatures, bringing them under our power, and setting one to work upon another.

We tame and improve animals, we improve plants, guide the lightning, constrain steam to serve us, fly by the aid of gas, cure by all kinds of medicine, and light is made to serve us in the place of artists.

In this realm man rules, and he seeks in all ways to extend his dominion. The present time boasts especially of this extension. But this is no gain, if all nobility of feeling, all sense for higher things, are to be choked and destroyed; if all intellectual power is to become slavishly subservient to the earthly; and if man, utterly blinded with his convulsive efforts, is to seek material objects only.

We are bound to strive against such ungodly and unworthy impulses. We may not be indifferent in whose name it is that we work; whether it is Moses who acts, or Jannes and Jambres. Both theoretical and practical natural science must be taught, in a right and pious manner; both must be sanctified, as well in principle as in purpose.

#### IX. THE CREATIVE POWER OF MAN.

When man, as the image of God, was placed as his representative in the dominion over the creatures, he was also himself shaped in the image of God.

It would seem that the Creator desired that his creatures should themselves partake of his creative power; for he conferred upon plants, beasts, and men the power of reproducing their kind, to all time; instead of himself forming one generation after another.

But to man he granted more; he granted him the gift of various creative powers, and an intelligent will for the free development of those powers. The bees build dodecahedric cells, not by a free and improvable art, but by instinct; they *must* make dodecahedra, just as the inorganic elements of a garnet crystal *must* gather into the same shape.

Of what kind, it might be asked, were these gifts in Adam, before the fall? Only one is mentioned in Genesis, that of speech. It was already observed that the Creator approved of the names which Adam gave to the beasts; and that these must therefore have expressed the real character of the beasts. In these names, humanly given, God's creation was mirrored, they were actual names; really *substantives*; arising out of the appearance of the creatures themselves. We, fallen men of the present day, can not make such names.\*

We may consider this giving of the names by Adam as the first entirely complete expression of human speech; a completeness which later men have sought to equal in many ways, in prose and in poetry.

The very name of poet reminds us that he is an image of his Creator—a "maker." The greatest of poets has, in the *Midsummer Night's Dream*, thus described the poet:—

"The poet's eye, in a fine frenzy rolling,  
Doth glance from heaven to earth, from earth to heaven;  
And as imagination bodies forth  
The forms of things unknown, the poet's pen  
Turns them to shapes, and gives to airy nothing  
A local habitation and a name."

Are not the forms born from Shakspeare's wondrously teeming

\* We make great efforts to describe in as perfect a way as possible, and search out many words, mostly adjectives, so as to stick together a sort of mosaic picture in words, as perfect and similar as may be, of minerals, &c.

fancy—Macbeth, Hotspur, Desdemona, Shylock—indeed most of the persons in his dramas—so entirely individualized, independent men, that we might almost be tempted to assert that they have a more individual existence than do numberless actual human beings?\*

Thus the poet creatively, by his words, reveals a rich interior world. And his poems even stimulate sensitive hearers to become poets themselves; to repeat his creative act.

The historian and the orator are related to the poet.

But above all the human arts of language, and different from them, stands in holy solitude the revealed Word of God, which through his efficient power causes the regeneration of the world. From its fullness, preachers, and singers of divine songs, draw their power over the hearts of their hearers.† In this holy realm, man finds a foretaste of the powers of the future world; of his return into his father's house.

As in the arts of language, so does the creative power of man express itself in fine arts. Raphael does not only give us true representations of localities and of men; he paints a new earth, a new heaven, and glorified saints like angels.

Thus we can trace this creative power in every art; in the sculptor, the architect, the musician; sometimes imitating, and sometimes idealizing, in a divine aspiration.

Every artistic gift implanted by God in the soul of a child must be faithfully cherished and trained. To this end the first requisite is, that his senses shall be trained: his eye to a true, clear, vivid apprehension of the visible world; his ear to true and keen hearing, &c. And with this development of the susceptibilities must sooner or later be connected that of the power of representation: of speaking, singing, writing, painting, &c.; that is, the development of the creating power. But, above all, his feelings must be purified and sanctified, that he may have no pleasure in impure artistic labors, in external beauty without internal moral goodness.

I can not utter a sufficiently emphatic warning against the usual abuses of these powers. The apostle James refers to the abuse of speech. "The tongue," he says, (and we may add, the pen and the press,) "is an unruly evil. Therewith bless we God, even the Father; and therewith curse we men, which are made after the similitude of God. \* \* \* Doth a fountain send forth at the same place sweet water and bitter?" And it is said, in earnest warning, "For by thy words thou shalt be justified, and by thy words thou shalt be condemned."

\* God did not make men and then depart, but they are of him and in him. Remain in him who made you. It is upon this truth that the real energy and actual existence of a human being depend.

† — The Word, added to the element, makes it a sacrament."

These warnings are applicable both to speakers and writers; and to hearers and readers too.

The fine arts, especially, have variously and deeply sinned against purity; let us guard our children against impure pictures. Unholy and delusive passions characterize the modern music; let us return to the chaste and pure music of the ancient masters.

I pray the reader to receive with indulgence this attempt to base pedagogy upon principles; to set forth, though only in outline, its purpose and object. It is an endeavor to show that all human training must seek the restoration of the image of God; and that a Christian, ethical, intellectual, and artistic training, in particular, should contemplate the renewal of our similarity to God in holiness, wisdom, power, and creative energy. Such a training leads to holiness, which has the promise of this world and the next.

## XII. JOSIAH HOLBROOK.\*

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JOSIAH HOLBROOK, whose name is indissolubly connected with the earlier development of the Lyceum, and with the efforts to improve our system of popular education in America, was the son of Colonel Daniel Holbrook, of Derby, Conn., where he was born about the middle of 1788. Col. Holbrook was an officer in the Revolutionary war, and a man of wealth and influence. His son received the ordinary common school education of the day, fitted for college under Rev. Amasa Porter, of Derby, and entered at Yale College in 1806, graduating in 1810. Three years afterward, he married a daughter of Rev. Zephaniah Swift, of Derby. She died in 1819, leaving him two sons, Alfred and Dwight. On the death of his father and mother, at about this time, the care of the farm devolved upon Mr. Holbrook, and it was during the period occupied in this vocation that the ideas which were the central ones of his subsequent labors first occurred to his mind.

Acting on these views, he opened, about this time, on his own farm in Derby, in connection with Rev. Truman Coe, one of the first schools in America which sought to teach a popularized form of natural science, and to combine manual labor with education. Boys in this school were allowed to pay a portion of their expenses by laboring on the farm. The institution was not permanent, but the experiment satisfied Mr. Holbrook of the practicability of the principle. We quote from a letter of Mr. Coe, to a son of Mr. Holbrook, the following statements respecting this school.

"He had long cherished the idea of endeavoring to found an institution in which the course of instruction should be plain and practical; an agricultural school, where the science of chemistry, and mechanics, and land surveying should be thoroughly drilled into the mind of the pupils by practice. With these views the Agricultural Seminary was commenced in Derby in 1824, and continued to the fall of 1825, under the direction of your father and myself; and, as far

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\* We are indebted in part for the material of this memoir to our own correspondence with Mr. Holbrook; to letters furnished by his son, Dwight; and to a paper prepared by Rev. Cyril Pearl, of Maine, for insertion in this Journal, but which, proving too long, will be issued by its author in a separate volume, and will be found a valuable contribution to the Biography and History of Popular Education in the United States.



as I know, was the first educational movement of the kind in all that region. But the institution, being unendowed and on a private footing, labored under many embarrassments, especially in never having land enough to carry out and accomplish the ends of its founders. We did what we could to train the students in the *analysis of soils*, in the application of the mechanical powers to all farming operations, and took out our young men often into the field and country for practical surveying, geological excursions, road-making, and the labors of the farm; but, not being able at that time to place the school on an eligible foundation, it was abandoned."

While at work on his own farm, Mr. Holbrook's zeal in the pursuit of knowledge led him, with the design of increasing his acquaintance with chemistry, mineralogy, and geology, to attend the lectures of Prof. Silliman, at New Haven—riding over and back from Derby for the purpose, notwithstanding distance and an inclement season.

The precise train of thought and of circumstances which led Mr. Holbrook to transfer his efforts from the farm and school at Derby to the wider field of popular scientific lecturing, we have no data for tracing. The American Journal of Education, then conducted by Mr. William Russell, contains, in its tenth number, for October, 1826, a paper by Mr. Holbrook, setting forth his views on the subject of "*Associations of Adults for the Purpose of Mutual Education*," which we here insert, with the editor's introductory remarks, as the earliest printed exposition of his principles.

#### ASSOCIATIONS OF ADULTS FOR MUTUAL EDUCATION.

[The following article is from an individual whose attention has been long and peculiarly directed to the subject on which he writes; and who has contributed extensive and efficient service to associations modeled on a plan similar to that which is now presented to our readers. The subject here introduced to public attention is one of uncommon interest, when regarded in connection with the progress of general improvement by means of education; it is equally important in a political point of view, as intimately connected with the diffusion of intelligence, and with the elevation of character among the agricultural and mechanic classes; and to the friend of moral improvement it offers a source of peculiar gratification, as a sure preventive of those insidious inroads of vice, which are ever ready to be made on hours of leisure and relaxation.]

#### TO THE EDITOR.

SIR:—I take the liberty to submit, for your consideration, a few articles as regulations for associations for mutual instruction in the sciences, and in useful knowledge generally. You will see they are upon a broad basis; and the reason is, that men of views enlightened enough upon education to see its defects and its wants, and spirit enough to act, are scattered more or less through the country; and all that is necessary for action, is some definite plan of operation, by which their efforts can be united and brought to bear upon one point. It seems to me that, if associations for mutual instruction in the sciences, and other branches of useful knowledge, could once be started in our villages, and upon a general plan, they would increase with great rapidity, and do more for the general diffusion of knowledge, and for raising the moral and intellectual taste of our countrymen, than any other expedient which can possibly be devised. And it may be questioned if there is any other way to check the progress of that monster, intemperance, which is making such havoc with talents, morals, and every thing that



raises man above the brute, but by presenting some object of sufficient interest to divert the attention of the young from places and practices which lead to dissipation and to ruin. I do not doubt but alterations in the title and articles will be advisable; but I believe, most confidently, that something of the general plan may be carried into effect.

*Society for Mutual Education.*

The first object of this society is to procure for youths an economical and practical education, and to diffuse rational and useful information through the community generally.

The second object is to apply the sciences and the various branches of education to the domestic and useful arts, and to all the common purposes of life.

Branches of this society may be formed in any place where a number are disposed to associate for the same object, and to adopt the following or similar articles as their constitution:—

The society will hold meetings, as often as they think it expedient, for the purpose of mutual instruction in the sciences, by investigating and discussing them, or any other branch of useful knowledge. The several branches of Natural Philosophy, viz., Mechanics, Hydrostatics, Pneumatics, Chemistry, Mineralogy, Botany, any branch of the Mathematics, History, Political Economy, or any political, intellectual, or moral subject, may be examined and discussed by the society.

Any branch of the society may, as often as they think it expedient, procure regular courses of instruction, by lectures or otherwise, in any subject of useful knowledge.

The society, as they find it convenient, shall procure books, apparatus for illustrating the sciences, a cabinet of minerals, and other articles of natural or artificial production.

The society may aid in establishing and patronizing an institution, or institutions, for giving to youths a thorough education—intellectual, moral, and physical—and in the application of the sciences to agriculture and the other useful arts, and for qualifying teachers. The aid to be given by furnishing means for the pupils, by agricultural or mechanical operations, to defray or lessen the expenses of their education.

Any person may be a member of the society by paying to the treasurer, annually, one dollar. And ten dollars, paid at any one time, will constitute a person a member for life.

The money paid to the society for membership or otherwise shall be appropriated to the purchase of books, apparatus, a cabinet, aiding an institution for practical education, or for some other object for the benefit of the society.

The officers of each branch of the society shall be a president, vice-president, treasurer, recording and corresponding secretaries; five curators, and three delegates to meet delegates from other branches of the society in the same county.

The president, vice-president, treasurer, and recording secretary shall perform the duties usually implied in those offices. The corresponding secretaries shall make communications to each other for the benefit of the society, as discoveries, improvements, or other circumstances shall require.

The curators shall have charge of the library, apparatus, cabinet, and all other property of the society not appertaining to the treasury.

The delegates of the several branches of the society in any one county shall meet semi-annually, at such place as they shall choose, for the purpose of consulting upon measures for promoting the designs of the society, particularly for encouraging an institution for giving an economical and practical education, and for qualifying teachers.

The delegates from the several branches of the society in any county shall be called the board of delegates from the society for mutual education in that county.

The board of delegates in each county shall appoint such officers as shall be necessary for their organization, or for doing any business coming within their province.

Each board of delegates shall appoint a representative, to meet representatives from other boards, who shall be styled the board of mutual education for a given state; and it might be advantageous to have also a general board, embracing the United States.

It shall be the duty of the general or state boards to meet annually, to appoint a president and other officers, to devise and recommend such a system of education as they shall think most eligible, also to recommend such books as they shall think best fitted to answer the purposes for which they are designed, and to adopt and recommend such measures, generally, as are most likely to secure to the rising generation the best intellectual, moral, and physical education, and to diffuse the greatest quantity of useful information among the various classes of the community.

Any branch of the society will have power to adopt such by-laws and regulations as will be necessary for the management and use of the library, apparatus, cabinet, &c., and for carrying into effect any designs not inconsistent with the general object of the society.

Several institutions, essentially the same as here proposed, have already been formed in our country, and some of them are highly useful and respectable: that others may and will be formed, there is no doubt. The object of the above articles is to forward the formation of them upon a general plan, and to form a connecting link between them which will enable them to unite their efforts, and may possibly lead them to vie with each other in prosecuting their general object, which is certainly second to no one that ever enlisted the talents of the philosopher or of the statesman, or the feelings of the philanthropist.

A few weeks later, in November of that year, we find Mr. Holbrook at Millbury, in Worcester County, Mass., where he delivered a course of lectures on subjects in natural science, at the close of which he succeeded in inducing thirty or forty of his hearers, farmers and mechanics of the place, to organize themselves into a society for mutual improvement, which at his request was called "Millbury Lyceum No. 1, Branch of the American Lyceum."\*

The formation of this Lyceum at Millbury was closely followed by that of several others in towns in that vicinity, and these were soon combined, in pursuance of Mr. Holbrook's general plan of a Lyceum, into the "Worcester County Lyceum." The Lyceum of Windham County, Conn., and its constituent Town Lyceums, were also shortly afterward organized; Mr. Holbrook's efforts in their case being energetically aided by Rev. Samuel J. May, then of Brooklyn, in that county.

From this time forward, Mr. Holbrook, for a long series of years, devoted all his efforts to the organization of a system of institutions, to bear the collective name of The American Lyceum; which was to consist of a State Lyceum in each State, this again of its subordinate County Lyceum, and these of the ultimate constituent bodies or Town Lyceums. The exercises of these bodies contemplated generally the instruction of their members in such departments of science as were calculated to improve their knowledge of and skill in their occupations, and this instruction was to be given by essays and discussions among the members, on plants, minerals, &c., from the neighborhood, or on proper subjects in science and art; and by lectures, either by members or by invited speakers.

During the years immediately subsequent to 1826, Mr. Holbrook made Boston his center of operations. He commenced there, about the year 1828 or 1829, the manufacture of philosophical apparatus

\* This Millbury association has often been referred to as the first in America in the nature of a "Lyceum." It would not however be difficult to cite a number of earlier instances of analogous attempts, such as courses of popular lectures on science, societies for mutual improvement, &c., for which see "*Memoir of Dr. Griescom*," "*Life of Timothy Claston*," "*History of Adult Education in England*," "*Life of Pilatre de Rosier in France*," &c. It is intended to give, in a future number of this Journal, some contributions to a history of early American enterprises of this character. See note B, at the end of this article.

for common schools; in which enterprise he was much aided by Timothy Claxton.\* This business is still carried on by his son, Dwight Holbrook, in connection with a corporation called the Holbrook Manufacturing Company.

One of the fruits of Mr. Holbrook's labors in the Lyceum cause during this period was the assembling of the meeting at Columbian Hall, in Boston, March 15th, 1830. The call to this meeting was issued in the name of the "State Committee of Lyceums," and its objects were stated to be "to receive reports on the progress of Lyceums, and the condition of common schools, and to acquire information as to the organization of infant schools, and the use of school and cheap scientific apparatus." The meeting was called to order by Mr. Holbrook, who stated its objects. Rev. J. Going, of Worcester, was appointed chairman; and Mr. Holbrook, chairman of the committee of arrangements. During this convention, Mr. Holbrook made a full exhibition of his school apparatus, and set forth his views as to its use and introduction. The discussions at this convention covered many important educational subjects, and one of its results was the appointment of the committee which drafted the constitution of the American Institute of Instruction, and called the convention to establish that body, which met at Boston, Aug. 19, 1830. Mr. Holbrook appears not to have been identified with this branch of the movement.

Another valuable suggestion of this convention was the recommendation of teachers' conventions, to meet at the time of the county lyceum meetings, for the purpose of forming associations for mutual improvement; and to hear lectures on educational subjects, from lecturers employed for that purpose. Numerous meetings of this kind were accordingly held during the following year.

Mr. Holbrook commenced, during the year 1830, an undertaking in another department of his chosen field of labor, by the publication of a series, entitled "*Scientific Tracts*," which were issued by him until the year 1832, with the view of furnishing useful information to the masses, on the same principle with the publications of the English Society for the Diffusion of Useful Knowledge. In that year Mr. Holbrook withdrew from the editorship of the "*Tracts*," and was succeeded by Dr. J. V. C. Smith.

This withdrawal was occasioned by Mr. Holbrook's desire to devote himself wholly to his labors for Lyceums, and to the interests of his weekly paper, "*The Family Lyceum*," which was commenced 28th July, 1832. This paper was intended to be the organ of his favorite enterprise; and, until its discontinuance after its first year, diffused

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\* See Note C.

among teachers and families a vast amount of useful miscellaneous popular information on scientific subjects, illustrated with many respectable wood-cuts.

At about the same period, a community of views brought Mr. Holbrook into communication with S. R. Hall, then at the head of the Teachers' Seminary at Andover; and he was appointed corresponding secretary of the School Agents' Society, organized in 1831, under the influence of Mr. Hall, "to procure and encourage traveling-agents in behalf of schools and education." This office he retained during the several years of the active operations of that society.

In February, 1831, Mr. Holbrook took an active interest in the formation of the Boston Mechanics' Lyceum, whose origin is thus given in the "*Young Mechanic*," for August, 1832.

The first meeting in favor of forming a Mechanics' Lyceum in this city (Boston) was called by Mr. Josiah Holbrook, February 5, 1831. Mr. Timothy Claxton presided, and Mr. W. S. Baxter acted as secretary. The evening was occupied by the discussion of this question, "Has any class of the community stronger inducements or better opportunities for mental improvement than practical mechanics?" which was decided in the negative. The meeting adjourned to February 12th, for the discussion of another question, and to take into further consideration the subject of forming a Lyceum. At this meeting, a proposition was made to form an association to be called the "Union Lyceum," and another, to form one to be called the "Mechanics' Lyceum," both of which were referred to the next meeting, which was voted to be held February 19th. The latter proposition prevailed at this meeting; and a committee was appointed to draft a constitution, to be reported at an adjourned meeting, February 25th.

The following persons were elected officers for the first season:—TIMOTHY CLAXTON, president; G. W. LIGHT, secretary; JAMES COOPER, treasurer; WM. S. DAMRELL and JOSEPH WIGHTMAN, curators.

At the first regular meeting of the Lyceum, a system of exercises was adopted, consisting of an elementary course of mechanical philosophy and geometry, interspersed with discussions of interesting questions.

The subjects of the lectures were treated upon by the members of the Lyceum, seven of them taking parts on the evenings of the lectures, and each one occupying about a quarter of an hour.

At a meeting held June 7th, (the same year,) the following subjects for lectures were adopted, for the second term; viz., architecture, political economy, botany, geology, natural history, astronomy, biography of practical men. The members were left to choose their own subjects for essays. At a subsequent meeting, it was voted that declamation should be added to the regular exercises of the lyceum, which was afterward found to increase the interest and usefulness of the society.

About the year 1834, Mr. Holbrook left Boston, and for a few years occupied himself chiefly with an effort to introduce the lyceum system into the State of Pennsylvania. This was quite successful, and a large number of town and county lyceums were organized. During the course of these labors, Mr. Holbrook conceived a plan which illustrates the comprehensiveness of his views of what his favorite system could accomplish; viz., that of a Universal Lyceum, to include national lyceums in all parts of the world. A list of officers was made out, who were invited to act, with Lord Brougham

as president, and was published in a small pamphlet, the "*First Quarterly Report*," together with a brief outline of the aims of the institution. Mr. Holbrook's labors in Pennsylvania were also, as his correspondence shows, of great use in promoting the cause of common schools in that State.

Mr. Holbrook appears already to have been some time contemplating the idea of Lyceum Villages; which, in one of his letters to his friend, Mr. S. W. Seton, of New York, he terms "the central wheel" of his system. During his innumerable journeys, he made some excursions in Ohio, and apparently labored with some results in that State. In 1837, having found a site, twelve miles south-west of Cleveland, Ohio, with the advantages of good water-power, and a quarry of stone suitable for grindstones, Mr. Holbrook founded there the Lyceum Village of Berea. The land occupied by this enterprise, five hundred acres, was vested in an incorporated board of trustees; houses, shops, and a school-house were erected, and a flourishing settlement soon established. Berea was to have been the first of a series of Lyceum Villages, with which Mr. Holbrook would have dotted the country; and which were intended to be centers for the residence of all persons interested in the Lyceum enterprise, for the practical exemplification of its principles in schools, whose teachers and pupils were to spend some portion of every day in manual labor, for the education of teachers, and for the diffusion of the Lyceum system throughout the country. Unfortunately, however, the enterprise, after a few years, came to a disastrous close, and was transferred into other hands, leaving Mr. Holbrook under a heavy load of debt, which crippled all his subsequent efforts, and ended that distinctive character which Berea had at first assumed. A second Lyceum Village was also projected, and partially organized, at Westchester, N. Y.; the site being chosen with a view to ready co-operation with the efforts in progress in New York City.

We next find Mr. Holbrook established in New York City, where he was, as early as 1842, acting as central agent of his plan of School Exchanges, and where he occupied business-rooms in the building of the Trustees of the Public School Society, corner of Elm and Grand streets. This plan of exchanges formed a part of the original scheme of Lyceums, which were to exchange collections of minerals, &c., with each other, for their mutual instruction and advantage. As introduced, however, during his stay at New York, and afterward, the plan was intended to excite and maintain in the pupils of the schools of the country an interest in each other and in the study of the natural sciences, and to promote the collection of museums of natural and other objects in each school. This was to be done by means of

the collection, by the pupils of each school, of minerals, plants, &c., from its own neighborhood, and by the formation of collections of drawings, specimens of penmanship, sewing, &c., to be exchanged for similar or equivalent collections from other schools. These museums were to be made the basis of lectures on the various departments of natural science. The delivery of such lectures, in a plain and familiar style, and illustrated from materials every where at hand, had long been a means efficiently employed by Mr. Holbrook in operating upon the schools which he visited.

During his stay in New York, his friend, Mr. Seton, then Agent of the Public Schools, drew up with his assistance a scheme for applying his favorite principles of education to the schools in that city. This is to be found, under the title of "*Plan of Instruction*," in the "Fortieth Report of the Trustees of the Public Schools, for 1846." Its features are, his long-advocated plans of teaching drawing, in connection with writing and map-drawing, and its further prosecution to some extent as applied to machinery and architecture, and to natural objects; the collection of natural objects, the study of them, and oral lectures on them; and the system of school exchanges, as a means of extending the interest and value of the collections. A report on the progress of the plan, in the report of the Trustees for the succeeding year, indicates that its results were regarded as very favorable, so far as it was carried into effect.

In the Spring of 1849, Mr. Holbrook went to Washington, leaving his business in New York in the hands of an agent, intending to spend a few weeks in ascertaining what influences could be gained at that city in behalf of his enterprises. The results of his labors in the schools there and in that region, and his intercourse with public officers and members of congress, were such as to give him expectations of enlisting the assistance or influence of the federal government in some way in the wider extension and firmer establishment of his system of instruction, and that city remained his residence and the center of his operations until his death.

The following extracts from one of his letters to Mr. Seton, dated Washington, Nov. 10, 1850, will indicate the character of the means by which Mr. Holbrook was proposing to accomplish his objects. He suggests,

*First*, A proposal for the New York schools, public and ward, to direct their attention for one month to the simple definite object of preparing an offering, a free gift, for the president of the United States, for each member of his cabinet, and for every member of congress, making in the whole about three hundred of their free-will offerings.

*Second*, That these offerings contain, in each case, a map of the State of the recipient, and a map of Palestine; if practicable, a sketch of some geological form.



ation, showing some feature in the earth's structure, or some species of organic remains; also something agricultural, some domestic animal, perhaps a particular breed of sheep, cow, or horse, some plant of the farm or garden, or some implement used by the farmer. Something of school architecture, either in buildings or fixtures, would have a specific aim and tendency. Some written extract from ancient saints or modern statesmen, or some poetry of religious or patriotic tendency. Something from Moses, David, Isaiah, St. Paul, or, still better, from Him whom St. Paul preached; from Washington, Adams, Clay, Webster, or any other preferred.

You know I am partial to drawing and writing. "*Drawing before Writing*," given in a sheet prepared for the specific object of a "*little leaven*," is already powerfully operative in leavening the whole lump. As these have been done beautifully in primaries as well as the upper schools, and done rapidly, large numbers of them might be produced. \* \* \* In addition to several of these simple specimens of "*Drawing and Writing*," in the packages to the members, millions would readily be distributed by them, scattered broadcast over the whole land, certain to prove good seed in good soil.

The third proposal is, to have them for New Year's Gifts, coming from the grand central wheel in the great commercial, to be cast into the other grand central wheel in the great political, metropolis.

My fourth suggestion is, by these and other stimulants and aids, to have as large and rich an exhibition at the next New York "Scholars' Fair" as possible, with the special design, publicly expressed, of having that followed by a similar exhibition in Philadelphia, then in Baltimore, then Washington, Richmond, Raleigh, Charleston, New Orleans, &c., &c.; taking a national circuit, which, once well started, will stop when the Hudson and Amazon stop. \* \* \*

Another letter to Mr. Seton, written the next day, explains the results hoped for from the means thus enumerated, and well illustrates at once the strong practical tendencies, the enthusiastic hopefulness, and the vagueness in tracing lines of future action, which were prominent characteristics in Mr. Holbrook's character and labors.

\* \* \* I will now give you several results, certain, as it seems to me, to arise from the elements named, if used as suggested.

*First*, An immediate and substantive benefit to the pupils aiding in the "New Year's Gifts" proposed. Hardly a principle in young beings, as the element and foundation of future life, will be left in disuse. Every lesson presented to them, on whatever subject, will be more thoroughly because more practically, learned. In reading, writing, spelling, grammar, arithmetic, geography, &c., &c., there will be stronger and higher mental action, because founded on a moral basis.

*Second*, Such a proposal or such exercises in New York would rouse the schools here, and in many other places, to similar action, eventually producing a returning influence upon the schools of New York.

*Third*, It would directly enlist the "powers that be" here, from the president down, separately and jointly, in this common cause; leading all government functionaries, both state and national, to follow their example.

*Fourth*, A pacific tendency with the North and South; as in it there is no North and South. If the occasion should be somewhat imposing, it would have a very decided, possibly a controlling, influence in settling the disturbed and convulsed waters now causing our country to reel to and fro.

*Fifth*, "*Cent an ounce postage*," making the mail a "common carrier." The immediate call for such a system, by materials in actual possession of the law-makers, would almost of course be met by the necessities of the case. If every member of congress could receive at the same time a package of juvenile products for his own particular use, and be requested to distribute others widely among his constituents, the necessity of the case, and the popularity of the measure, acting through the country generally, would infallibly, I think, lead to a liberal post-office policy. Every one must see this one point to be of very great consideration to our whole country, in all its interests—political, commercial, scientific, social, moral, and religious.



*Sixth*, A national system of "Industrial Exhibitions," of the traveling order, bringing each exhibition to aid and be aided by all the rest. The specimens distributed as proposed over the country, presented in direct connection with this plan as one of the objects, would inevitably bring specimens from various places and in increased numbers to the next Scholars' Fair in the spring. Specimens thus sent in would at once furnish materials for commencing a traveling system of exhibitions, and create a deep interest in them. If, for example, the specimens should be sent from Philadelphia, those specimens in one way or another would be so much stock in business, and be certain to create a desire to have it reciprocated in that place. So it would be especially here, and, as one of its results, produce flesh and blood upon the "dry bones" here under the name of trustees. \* \* \*

*Seventh*, A call for district professors for the whole country, to hold meetings once a month, or oftener, consisting perhaps of delegations from the schools in a given town or district. To illustrate: suppose county superintendents of schools be elevated into county scientific professors, to give monthly lectures in each town of the county, under an arrangement for all the schools to participate, not so much in hearing lectures as in preparing materials for instructing each other, under the occasion of the lectures and the aid of the lecturers.

*Eighth*, Giving an occasion for the "Lot Plan"\* as the foundation of self-instruction, raising up professors to carry it out through the country. I am settled in the belief that such professors can never be prepared in our colleges. [Here Mr. Holbrook refers to some geological lectures lately heard by him, and contrasts the common method and his own by saying:] My geology consists of facts, actual things, about the earth. Theirs is speculation about the mode of the earth's existence. Mine tells me what mountains are. Theirs tells, or speculates, whether they were formed this way or that. Mine gives certain and interesting knowledge to young minds. Theirs, to a great extent, out of the reach of all minds, their own included.

But no definite and efficient co-operation seems to have been secured from any official source; and, during the years 1852 and 1853, his correspondence shows that occasional fits of despondency, doubtless in some measure the result of excessive mental labor, were annoying him; and he began to speak of leaving his work to be carried on by other hands. In May, 1854, he made a journey to Lynchburg, Va., on business connected with his enterprise; and, having walked out alone one morning, was evidently collecting minerals, as he had been busily engaged in doing for some weeks, from the face of a precipitous cliff, overhanging a deep creek, and lost his footing, fell into the water, and was drowned. He was not missed for a day or two, being supposed to be visiting in the vicinity; but, on searching for him, his body was found, on the 24th of May, floating in the water. He was interred in the burying-ground of one of the churches at Lynchburg, and his funeral was attended by a large number of persons, who had already become interested in his enthusiastic devotion to science and education.

The American Institute of Instruction, at its annual session, at Providence, R. I., in August following, on the announcement by Mr. Gideon F. Thayer, of Boston, of the fact and circumstances of his death, passed the following resolutions.

*Whereas*, Since the last annual meeting of the Institute, our associate and esteemed friend, Josiah Holbrook, has been removed by death from the scene of his early labors; therefore,

\* This seems to have been a modification of Mr. Holbrook's scheme of a Lyceum Village.

*Resolved*, That, as lovers of science, of human progress, and of man, we, the members of the American Institute of Instruction, lament the loss, to ourselves and to the world, of Josiah Holbrook, one of the original members of the Institute.

*Resolved*, That in the example of Mr. Holbrook the young teacher is taught that energy, devotion to duty, and perseverance will accomplish every reasonable object at which the mind may aim; that a resolute will, and fixedness of purpose to one end, ever secure eventual success.

*Resolved*, That our whole community owes a debt of lasting gratitude to the deceased, as having been the father of the system of Lyceums, by which a taste for science has been excited, and the young of our cities and villages have been allured from frivolous if not hurtful pleasure, and instructed in subjects which enlarge, elevate, and improve the mind and heart.

*Resolved*, That, as teachers and friends of common school education, we hold in grateful remembrance the life and labors of Josiah Holbrook, who was among the first to introduce into our schools the use of apparatus for the illustration of Science, and to introduce and recommend the collection of geological specimens, to excite in the young an interest in the formation of the material world.

*Resolved*, That we sincerely sympathize with the bereaved family of the deceased in their affliction, and trust that the remembrance of his useful life, and beneficent efforts for the universal improvement of man, will abide with them, to assuage their grief.

*Resolved*, That these resolutions be entered on the records of the Institute, and that a copy of them, signed by the president and recording secretary, be transmitted to the family of the deceased.

Remarks in support of the resolutions were made by Messrs. Greenleaf, of Bradford; A. Greenleaf, of Brooklyn, N. Y.; and Z. Richards, of Washington, D. C., after which the resolutions were adopted unanimously.

While thus tracing a brief outline of the main facts of Mr. Holbrook's life, we have not attempted to give any extended statement or criticism of his views or purposes, nor of the system of instrumentalities by which he sought to realize them. We need not enter into the question of his merits in respect to the origination of the various educational reforms of the last quarter of a century. None can deny him the merit of having been a most faithful and efficient laborer in promoting many of the most important of them. A view of these will be found in the following appreciative sketch, by his early friend, Prof. Wm. Russell, which we gladly insert, at the risk of some unimportant repetitions.

#### RECOLLECTIONS OF JOSIAH HOLBROOK.

Among those friends of education who took an active part in endeavors for the improvement of schools, during the second quarter of the present century, none labored more strenuously or devotedly than Josiah Holbrook. Nor was he less active in the sphere of benevolent exertion for the diffusion of useful knowledge in scientific forms among adults, engaged in the various pursuits of life, and particularly those occupied in farming.

In both these spheres, his truly disinterested and philanthropic spirit, impelled by a zeal which habitually rose to enthusiasm, aimed at nothing short of an entire revolution in the forms and aspect of education in our schools of every grade, by introducing in them all, as the principal means of mental discipline and development, the study of natural objects, and of the common phenomena and processes of Nature, in the various departments of her great "kingdom." A

large share of his attention was bestowed on ingenious contrivances, also; by which the different departments of physical and mathematical science might be successfully illustrated. As a philanthropic reformer of society, he took a deep interest in the welfare of the laboring classes, and occupied much of his time in devising measures for securing to them the benefits derived from the pursuit of knowledge in the forms of science and of art, connected with the habitual occupations of individuals and communities. In these endeavors the greater part of his life was passed; and his lamented death was caused by his zeal in such pursuits.

As an active and efficient friend of education, aiming at results strictly practical and reformatory, Mr. Holbrook devoted himself, with great earnestness, to several prominent points of great importance, in his view, to the improvement of schools. One of these primary objects of attention was the introduction of the study of *botany*, in simple forms, adapted to the capacities and wants of young children. When visiting schools for this purpose, his method was to take the whole school and the teacher into the nearest field, and set all hands to work, gathering, for inspection, as many different forms of leaves as could be found. These were carefully examined and compared, their resemblances and differences closely observed and minutely discussed, in a brief oral field-lecture, consisting of conversational questions and answers between the instructor and his pupils. On returning to the school-room, the children were directed to place their gathered treasures of leaves, for preservation, in their old writing-books; each of which was thenceforward to wear the dignified name of "*folium*," or leaf-book. A subsequent employment for rainy days and spare hours was the drawing, on the blackboard or on the slate, the simple, elementary geometrical forms which lay at the basis of the different shapes of the leaves. This last exercise was performed under the direction of the instructor, with the aid of a little manual of geometry, adapted to juvenile pupils, and, in the case of more advanced classes, by reference to a set of geometrical solids, also prepared for the express purpose.

In this truly natural method of instruction, founded on a philosophical appeal to the constitutional tendencies of thought, and feeling, and action in childhood, there was a most successful exercise and development, and a judicious and skillful training, of two prominent faculties of the young mind—*observation* and *imitation*. The physical and moral effect, too, of the inspiring change from the confinement of the school-room to the sunlight and fresh open-air, together with the invigorating bodily activity attending the field-exercise, and, again, the alternation to the quiet seclusion and thoughtful application within doors, all tended to produce the happiest effects, not only for the passing hour, but for the tendencies and habits of life.

Here, moreover, was exemplified the true economy of teaching. Recess-time was rendered a brief season of healthful recreation; conducive, also, to genuine enjoyment and mental progress. Botany was so introduced as to lead to the practice of drawing, and drawing to the study of elementary geometry, while the arrangement of the leaf-book was, at the same time, giving a silent but most effectual lesson of order and neatness in habit, and thus laying the foundation for the subsequent philosophical discipline of classification. Under such training, which combines so many subsidiary exercises in but one apparent process of culture, the pupil is advanced and developed in his natural unity of life, heart, mind, and will, and cordially co-operates in his own education.

Another special object of attention in Mr. Holbrook's mode of procedure, was a practical course of study in elementary *geology*. His practice was, in introducing this branch, to "begin, continue, and end" with excursions and field-lessons, in all cases in which such a course was practicable; and many adults, in various parts of the United States, still remember with pleasure their participation in the benefits of such rambles in their school-days. In city schools, with pupils too young for the length of walk required for study in the field, his plan was always to teach with specimen in hand, and, in all cases, to encourage his classes to make collections, and contribute to the formation of school-cabinets. With a view to this result, he, for successive years, organized an extensive arrangement for the exchange of local collections of specimens; and, for the purpose of extending the moral interest of such collections, he enlarged his plan so as to embrace, in the system of school exchanges, specimens of drawing, penmanship, and needle-work by the pupils of schools in all parts of the Union. The effect of this part of Mr. Holbrook's plans was undoubtedly to "provoke unto love and good works" among the juvenile givers and receivers; although it gave rise to "skeptical doubts" in some minds as to the result of "so many irons in the fire."

An excellent feature of Mr. Holbrook's plans, and one of unquestioned benefit, was that of suggesting and procuring the introduction into schools of the *illustrative apparatus* which bears his name, and which his son continues to furnish to schools throughout our country. Mr. Holbrook, by his success in attracting the attention of teachers to the importance of using visible illustrations in all forms of instruction which admit of their use, rendered an invaluable service to the improvement of education, and contributed, in no slight degree, to the diffusion of those views which, of late years, have led to the introduction into our higher seminaries of those more complicated and costly illustrations which advanced instruction requires.

The main object of interest to Mr. Holbrook's own mind, was the establishment, throughout the United States, of *popular associations for the diffusion of scientific knowledge connected with the useful arts*. The plan and operation of a national system of regularly organized associations, furnished with "a central heart, conducting arteries, and returning veins," securing the circulation of a vital current of science throughout our country, was the favorite theme of his thoughts and the unceasing aim of his endeavors, during the greater part of his life. To bring his views and purposes to actual accomplishment, he traveled for successive years, from place to place, founding branches of what he fondly termed the "American Lyceum;" and many of these establishments remain as memorials of his benevolent enterprise, and still wear the designation of "lyceum," although the idea of connected ramifications was never perfectly realized.

Mr. Holbrook organized and conducted the first lyceum, so called, in his own town, in the State of Connecticut, with a class of mechanics and farmers, some of whom took part personally in the exercises of their weekly evening-class. Many towns and villages in New England owe, primarily, their weekly intellectual treat of a popular lecture to the genial spirit and persevering labors of Mr. Holbrook, the father and founder of the lyceum system. The influence which he has thus exerted on the intelligence, the tastes, and the habits of New England, will long continue, we may trust, to cause his name to be held in grateful remembrance.

To the earnest spirit and persevering endeavors of Josiah Holbrook, the city of Boston owes, in part, one of its most excellent institutions—the Lowell lec-

tures, from which source, as a perennial fountain, the streams of scientific instruction annually issue, for the benefit of thousands—not only of the citizens, but of the many visitors from various portions of New England, who are attracted, in not a few instances, by the high advantages for intellectual culture and enjoyment which that noble-hearted city affords, alike to the denizen of her municipal circle and the stranger within her gates. In the winter of 1828-9, Mr. Holbrook came to the city of Boston, for the double purpose of rendering service to the cause of education, by his customary visits to the schools, and of establishing a lyceum association, with a view to the effect which such an arrangement might exert on other towns accustomed, perhaps, to follow the lead of Boston, in matters of intellectual and social relation.

The English Society for the Diffusion of Useful Knowledge had, at the time referred to, called forth every where the sympathy and zeal of all friends of education and of popular progress. Mr. Holbrook, accordingly, having subjected his plan to such modifications as the circumstances of a city like Boston seemed to require, and having laid his views before men of influence in the place—among whose names were found, as ever, auspicious in such undertakings, those of Daniel Webster and Edward Everett, and others of like spirit—a public meeting, honored by the presence of such men, was held, which soon eventuated in the formation of the Boston Society for the Diffusion of Useful Knowledge, whose plan and proceedings suggested, it is well known, to the discerning mind of the late John Lowell, the idea of the admirable arrangement for the course of gratuitous public lectures which bears his honored name.

Nor can we here justly pass by the Boston Lyceum, formed under the influence of those views which originated with the mind of Mr. Holbrook, although submitted to those modifications which an independent organization in a populous city naturally required.

The success which Mr. Holbrook's endeavors met in his visits to the different parts of New England, with a view to the establishment of lyceums, induced him to continue his exertions in this connection and that of visiting schools, and to extend them into the Middle States. There he found a still wider field of action in his favorite purposes; and, in some places, the effect of his labors was to awaken an intense interest in the subject of popular education, where it had subsided or slumbered, and in some instances where the subject had been met in the spirit of unmitigated hostility. Such was the case in some portions of the State of Pennsylvania, where a vigorous movement in favor of education was in progress in certain quarters, but a bitter opposition was manifested in others.

Having secured the hearty co-operation of an influential licentiate of the Dutch Reformed Church, who recognized in their true light the purposes of Mr. Holbrook, he made an extensive tour in the interior of the state, presenting his views of practical popular education with such success that, ere many months had elapsed, a teachers' convention was held, in the full spirit of such a gathering, and to the great delight of the people generally, in Lycoming county—previously designated, in a popular phrase, as "bear" county. In this region, some of the former inveterate enemies of education were heard exclaiming, "Yes, if *this* is education, we want it. This will make our sons better farmers; and they will know, when they are selling their farms, whether they are selling coal, and lime, and iron, too."

Still ardently pursuing his original plan of a national association for the diffusion of science among the people, Mr. Holbrook spent the latter part of his life in the District of Columbia, where he occupied himself in preparing the way

for the consummation of his cherished purpose of establishing in Washington city the head-quarters of a national lyceum. With this view, he devoted some time to the examination of the scientific institutions of the city, and the inspection of the condition of agriculture in the vicinity. In connection with the latter subject, he prepared a series of articles on agricultural chemistry, for the "*National Intelligencer*," which were read with great interest throughout the wide sphere of the circulation of that excellent paper. Occasionally he diversified his pursuits by excursions, undertaken for the purpose of exploring the geology and ascertaining the mineralogical wealth of the adjacent regions of Virginia.

On one of these tours, when boating not far from Lynchburg, tempted by an apparently valuable specimen, imbedded in the steep, rocky bank of the creek, he climbed to obtain it, and, trusting for support to his hold of a jutting portion of rock, it unfortunately gave way; and, whether owing to fatal hurts in his fall or his inability to swim, he was drowned in the deep pool below.

In his death, the great common cause of popular education met with an irreparable loss, which, every year, is felt more deeply as his wide views and disinterested life come to be understood and more justly appreciated, and the teachings of Agassiz have led instructors to feel more deeply the great value of the study of Nature, as the divinely-appointed school of the young mind.

Teachers, too young to have held intercourse with Mr. Holbrook, sometimes ask the question, Why was he not more successful in his purposes—why was he not more adequately supported in his noble endeavors? The answer is easy to those who knew him—a quiet, retiring, unostentatious man, little attentive to the conventional circumstances of arbitrary social life, somewhat negligent of appearances, never caring to assert himself, strong in his conscious good purposes, enthusiastic in the contemplation of a great plan of practical utility, utterly indifferent to "filthy lucre," walking twenty miles on a stretch for the "largest liberty" of geologizing or botanizing, making all his experiments on metals with his own hands in the blacksmith's shop. On one occasion, the writer of this communication met him issuing from such a scene in the streets of Brooklyn—his working-coat both shabby with age and badly torn; his face begrimed with smoke and soot, and his hands in the same condition; but his eye gleaming, from under its heavy, massive eyebrow, with delight at the result of his operation, and his whole soul buoyant with the amount of business then daily done at his School Exchange Office in Canal Street, New York—packages arriving daily from the furthest east, west, north, and south. As he left the ferry for his office, he pursued his way along Broadway, utterly unconscious of the state of his outward man, but evidently in an inward "glory and a joy" as deep-felt as that of the peasant-poet in his raptures of inspiration.

The unworldly spirit of Mr. Holbrook, his shyness in society, the plain style and tenor of his daily life, and his entire absorption in his peculiar plans and purposes, all laid him open to misapprehension; and to some, who formed their conceptions of the man from first impressions or slight acquaintance, it was matter of surprise to be informed that he possessed the advantages of liberal education, and was a respected graduate of Yale College. Had he presented himself in certain circles among us, with the prestige of an unpronounceable foreign name, and the insignia of some European scientific institution, his views and aims would probably have met with a flattering recognition. It pleased him better to be what he was—a plain, straightforward man, a practical teacher of childhood and youth, and an unpretending friend of popular progress. The



publicity which his peculiar position involved, and which some who did not know the man attributed to a love of notoriety, was an unavoidable, not an intentional, result of the course which he had to pursue, working out—for the most part, alone and unassisted—a scheme for the general good, and of which he necessarily became the sole advocate and representative.

From his zealous activity in introducing into schools the use of the illustrative apparatus which now bears his name, and from which it was supposed by some that he derived a large personal share of profit, pecuniary motives were sometimes attributed to the mainspring of his ceaseless exertions for the accomplishment of his public purposes. To those who knew him intimately, and who daily observed his stoical indifference alike to personal enjoyment and personal advantage, the imputation of such motives was an utter absurdity. But had he even levied a liberal contribution from the extensive sale of the various articles which were so generally adopted in consequence of his references to their use, it would have in no respect differed from any other usual, fair business transaction. To all considerations of personal advantage, however, he was only too indifferent. It was his part to pass through life with "clean hands and a pure heart," and self-denying devotion to the good of others. His brightest moments of enjoyment were those in which a child, confiding in his sympathy, would come up to him, holding up a wild-flower, and questioning him about its nature or its name; or when an intelligent teacher would manifest a warm interest in the interpretation of Nature, as a part of her own daily duties to her juvenile dependents.

Let one of these faithful guides of the young mind speak the experience of many such. The writer of this article quotes her words without her knowledge or permission, but with no violation, he trusts, of the privacy of an humble daily life of useful toil. The note from which the following is an extract was addressed to that indefatigable laborer in the service of education, the Rev. B. G. Northrup, state agent of the Massachusetts Board of Education. Referring to a lecture by that gentleman before a teachers' institute, the writer proceeds:—"Permit me, a stranger, to express to you the surprise and pleasure with which I listened to the just and true tribute of respect paid by you to the memory of the beloved and lamented Holbrook. I think it will be pleasant to you to learn that his labors were not wholly lost. You expressed a fear that there were none now who carried out his plan of 'object teaching.' I know of one who, through a long experience in teaching, has always devoted some part of every day to this and similar exercises, and who was first taught it by Mr. Holbrook himself, more than thirty years ago, when a little girl in the public school in Greenfield, Mass., a school which Mr. H. visited and instructed, and imbued with his own love of Nature in all its forms—plants, minerals, and shells; stars, storms, and sunshine.

"I doubt not there are many others from that same town-school—which, in due time, sent out a score of teachers—who have also been practicing on those principles and that manner of teaching. We have all taught 'in the shade:' the great world has never heard of us. But the children who love us, and who love our 'lessons in thinking,' or 'lessons on objects'—as we sometimes call them—will never forget to *observe*, and *notice*, and *compare*, or forget the difference between '*eyes and no eyes*.' We have governed our schools by love and confidence rather than by fear, and all, (as far as I have learned,) have had great success in gaining the affection and esteem of our pupils. I have had over a

thousand different scholars under my care; and I have reason to think there are few that do not look back with interest and pleasure on the days spent in my school.

"We all were aided in our youthful efforts in teaching by a meeting of the teachers' institute, held, I believe, in 1851, at Greenfield, Mass., and conducted, (if my memory serves me right,) by the Hon. Horace Mann, assisted by Mr. Holbrook. At that meeting, lessons in astronomy, arithmetic, and geometry were explained and illustrated, and a new method of teaching the alphabet explained by Mr. Mann, which I have always used, and which I consider superior to any I know of. The lessons in geometry and mathematical geography I have always been obliged to teach by rough models, of our own manufacture."

To these recollections and appreciative estimate of the subject of this memoir, we append an eloquent tribute to his educational services and personal character by Hon. Samuel S. Randall, superintendent of schools for the city of New York.

As early as 1826, Mr. Holbrook laid in Massachusetts the foundations of that system of lyceums and literary and scientific associations which has since pervaded our land, and produced a rich harvest of knowledge; and at about the same period gave the first impulse to that great legislative movement, by which state geological and mineralogical surveys were instituted, and the immense physical resources of our national borders explored and illustrated. These important results originated in the instructions gratuitously communicated by him to classes of children whom it was his custom, during his whole life, to attract around him by his interesting, simple, and familiar expositions of natural history. Collecting specimens of the various minerals, metals, and fossils of every neighborhood he visited, and rendering himself acquainted with its topography and physical resources, he taught his delighted pupils the elementary principles of science, stimulated them to investigate nature for themselves, to make collections of all the varieties of rocks and mineralogical specimens which the region afforded, to execute simple maps and drawings of the towns and counties of which they were residents, and of such other objects as were most familiar, and to institute a system of exchanges with the children of other neighborhoods, by means of which a community of interest and of exertion might be secured and perpetuated.

These specimens and drawings soon attracted the attention of parents and others interested in scientific pursuits; they were produced for exhibition at school examinations and public gatherings, and found their way to legislative committees, who failed not to perceive their eminent utility, and their ready adaptation to practical purposes. Associations for scientific improvement were at once formed among the young, and organized, under the supervision and auspices of this indefatigable philanthropist, into lyceums and institutes. Members of the legislature were furnished with county and state maps, the product of young hands and the offering of young hearts; and the project was forthwith conceived of a general and accurate survey of the state, with a view to the development of its resources and an exposition of its capabilities. The example of Massachusetts, in this respect, was speedily followed by the adoption of a similar resolution in our own and other states, and the results of these wise measures are now before us in a series of volumes, the product of the most eminent and distinguished scientific authors of our age and country.

The system of scientific exchanges now so prevalent, and one department of which has received so great a share of legislative encouragement and regard, followed in the train of these great movements; and their philanthropic originator, careless of fame, and content with the consciousness of having promoted the true and lasting welfare of the rising generation, interposing no claims, and putting forward no pretensions, to recognition or reward, left the early and active scene of his labors only to renew them elsewhere. Having transferred himself to the city of New York, he unfolded his plan of operations to a few select friends, capable of appreciating his views, and prepared to co-operate with him in their realization. Here he met with much encouragement and practical assistance, and here, year after year, were gathered, in one of the rooms of the hall of the Board of Education, the noblest and finest specimens of science and of art which the children of the public schools, and such others as could be induced to interest themselves in these attractive operations, could produce. From this rich depository, were, from time to time, forwarded to every section of the Union choice selections, with the view of eliciting exchanges; and here were busily and profitably engaged hundreds of active young hands and minds, whose energies might, but for this judicious employment, have been diverted to vice and crime.

Having thus laid the foundation for extensive usefulness in his peculiar field of operations here, Mr. Holbrook turned his attention to the South; there, as here, he surrounded himself daily with eager and attentive young listeners—exciting their curiosity and stimulating their exertions by displaying the beautiful and attractive tokens of regard forwarded by their young friends in New York, and pointing out to them the mode by which these most acceptable tokens and remembrances might be reciprocated. Then, after having penetrated the rural districts of Virginia, diffusing light and knowledge wherever he went, and meeting with the kindest and most generous appreciation of his labors and his motives, he succeeded in enlisting the interest and sympathies of the most intelligent and influential men of that "Ancient Dominion" and its adjacent borders; and, repairing to the seat of government, he at once secured the co-operation and countenance of the occupants of the various executive and legislative departments, of the representatives of foreign courts, and of the municipal authorities of the city. Indefatigable in his desire to advance his favorite system, and disregarding the numerous indications of approaching age and failing health, he was induced, during the summer of 1854, to visit the city of Lynchburg, in Virginia; where, in one of his geological excursions, unaccompanied by any of his friends or pupils, he accidentally lost his footing on a steep cliff, overhanging a deep stream of water, into which he was precipitated, and where his lifeless remains were some days afterward discovered.

There, in a secluded corner of the churchyard, followed to his long home by a train of weeping children and pupils—far from the friends and associates who knew and loved him longest and best, reposes all that was mortal of one of the kindest, noblest, purest, and most disinterested and devoted friends of humanity! Long, long after the fleeting and transitory triumph of the politician and the warrior, and the busy schemes of the proud, the vain, and the wealthy, shall have faded into insignificance and oblivion and been forgotten, will his work of humble and unpretending usefulness, his labors for the benefit and advancement of the young, remain an imperishable monument of his untiring philanthropy and ever-active beneficence. How seldom does the world recognize its truest

benefactors! how little do mankind appreciate the immortal few among them, but not of them, who, amid the pressure of straitened circumstances; surrounded by innumerable embarrassments and obstacles; borne down by pain, by illness, and physical suffering; and oppressed by mental anxiety and harassing cares; "press right onward, bating not one jot of heart or hope," in the path of duty; diffusing around them, on every hand, the elements of knowledge, of wisdom, and of happiness; "sowing by the side of all waters" those precious and invaluable germs of future excellence, destined for perennial growth and progress; seeking no other recognition than that of kindred spirits, and asking and receiving no other reward than the consciousness of a life well spent!

Such was JOSIAH HOLBROOK. In the congenial soil of his noble nature, every Christian virtue took deep root, and yielded an ample and luxuriant harvest. With no personal aspirations, no desire for fame, no ambition for individual advancement, and no wish for wealth, he sought only the welfare and happiness of others, and was content to know that these were secured, to pass on his unassuming way. A welcome inmate in every social and domestic circle, the idol of the young, the dignified companion and counselor of mature age, the warm-hearted friend, and the devout and earnest Christian, his memory will long be cherished and revered by those who knew his worth, and enjoyed his confidence and regard. His venerable and beloved form has forever passed from among us; but we know that his emancipated spirit has winged its flight to those blissful regions where "the wicked cease from troubling and the weary are at rest."

"Green be the turf above thee,  
Friend of my better days;  
None knew thee but to love thee,  
None named thee but to praise!"

## NOTE A.

**AGRICULTURAL SEMINARY AT DERBY.**—A former pupil of the Seminary at Derby has furnished us with the following account of its plan of operations for the first half-year.

"You ask me what I remember about the Academy of Messrs. Josiah Holbrook & Truman Coe. It was established in the town of Derby, in this State, in the spring of the year 1824, and was, I believe, discontinued after one or two years. The Prospectus published in the newspapers of that day gives an outline of the course of study and the plan of operations. It is substantially as follows:—

"The exercises designed are the study of the Latin, Greek, French, and English languages, Rhetoric, Elocution, Geography, and History:—the Mathematics, as Arithmetic, Algebra, Geometry, Plane and Spherical Trigonometry, Mensuration, and Fluxions, Natural Philosophy in its various branches:—Astronomy, Chemistry, Mineralogy, Botany, and Zoology. No efforts will be spared to render these sciences practical, and fitted to common life. With that view, particular attention will be given to Composition, Declamation with extempore debates, the uses of the higher branches of Mathematics in common business, Practical Surveying, the application of Natural Philosophy to various kinds of machinery, agricultural instruments, &c.,—testing the principles of chemical science in mixing and preparing soils, forming manures, making cider, beer, spirit, and various other articles of agriculture and domestic economy, agricultural, geological, and botanical excursions into various parts of the country, examining and analyzing soils, and practical agriculture."

"One prominent object of the school is to qualify teachers. The most approved methods of instruction will be introduced, and lectures will be given on most of the Physical Sciences, attended with demonstrations and illustrations sufficiently plain and familiar to admit of their being introduced into common education. Courses on Natural Philosophy, Chemistry, Mineralogy, and Botany, will commence at the opening of the Seminary. Ladies will be admitted to the lectures, and there will be a department connected with the institution, where females can pursue any branch of Education they may wish."

"The number of scholars of both sexes, during the summer of 1824, was perhaps 50 or 60; among whom were five boys from New Haven, about as many from New York, and some from other places, near and remote. The school was certainly an attractive and pleasant one, and those who were so disposed made good progress in useful learning. Several of the boys were intrusted with surveying and leveling instruments, and used them frequently and successfully. Mr. Coe gave special attention to the mathematical studies, and Mr. Holbrook gave lectures and instruction in natural history and allied subjects. The boys rambled extensively over the hills of that region, did some work in hoeing corn and potatoes and in making hay, and once made a pedestrian excursion for minerals, to Lane's mine in Monroe."

"The working of the school was harmonious,—a spirit of study generally prevailed among the pupils, and the supply of out-door exercise and sports was ample."

## NOTE B.

## LYCEUM—ORIGIN OF NAME; PROGRESS.

The name Lyceum has been transferred from the local appellation of a building or grove, used for gymnastic exercises, in the suburbs of Athens. This was called the Lyceum, because it was near the temple of Apollo Lycia, "the destroyer of wolves" (*Lukoi*). It was made over to Aristotle, to be used by him as a place for delivering his instructions, and as such became famous under its local name. The word was adopted in modern times, and made a generic term or common noun, to designate schools where the philosophy of Aristotle was taught, and subsequently in France to institutions for giving a higher grade of instruction to adults, upon a plan sometimes in whole or in part mutual or conversational, and thus somewhat similar to the lectures in which Aristotle gave his instructions at the original Lyceum.

These lectures are supposed to have been of two kinds; those which he delivered in the forenoon, to confidential—"esoteric"—hearers, on abstruse subjects in philosophy, nearly answering to theology, and on physics and dialectics; and, secondly, those which he delivered in the afternoon, to a less select or "exoteric" audience, which included rhetoric, sophistics, and dialectics, and were of a more popular character. Such courses of lectures, which were then usually given by philosophers eminent enough to be at the head of a school, corresponded in some measure to the collegiate or university education of the present day. Aristotle's instructions were delivered while he and his pupils walked about in the grounds of the Lyceum; and his school was under certain regulations for the preservation of order and decorum.

The name was applied to an institution opened in Paris, in 1786. Pilâtre de Rozier, the celebrated aeronaut, and who perished by falling from his balloon, had some years before attempted to establish, under the name of "Museum," an institution for the improvement of adults, of which we find no very full account, but which seems to have resembled quite strikingly, in some of its chief features, the American Lyceum. It included a collection of natural objects, and a library. But it was pecuniarily unsuccessful, and was dissolved; the collection and books being sold. A number of gentlemen of literary taste, some little time afterward, associated themselves together to establish another institution, on a plan improved and enlarged from that of de Rozier's museum, and which they called the Lyceum. At the rooms of this institution, daily lectures were delivered by M. de La Harpe, an eminent author and critic, during the period from 1786 to 1794; when they were interrupted by his imprisonment, and were subsequently resumed for a time. These lectures were to some extent similar to our present popular lectures; or rather to the courses on the Lowell foundation, and sometimes to those before our various young men's institutes. They were of a popular character, and were attended by numerous audiences of the most fashionable people of the day. They were upon the history of literature, and included much collateral disquisition, and particularly criticism. The author subsequently published their substance, under the title of "*Cours de Littérature*." The work has become a standard one, and has been often republished, and variously edited, with notes and additions. The lectures of La Harpe appear to have constituted the principal instruction of the Lyceum, as the celebrity of the institution did not survive his connection with it.

The name has, during the present century, been applied in France to a class of schools corresponding to the gymnasiums of Germany, and the academies and public high schools of this country.

The Conservatory (*Conservatoire*) of Arts and Trades, in Paris, which originated with Vaucanson, in the reign of Louis XVI., but did not take specific shape



and action until 1796, embodies, in a systematic form, many of the ideas of the Lyceum, as proposed and labored for by Josiah Holbrook, for all classes of persons and interests, from 1838 to 1840. It has grown with the development of national industry, and the progress of science; and, aided by annual governmental grants, it has become consolidated into an institution. Its thirteen galleries of materials and of machines may be called the archives of industrial arts. Its lectures, scientific and practical, delivered in a large amphitheater, are crowded in the winter evenings by representatives of the working classes. Similar institutions, but resembling more the mechanic institutions of England, exist in the principal manufacturing towns of France.

#### MECHANICS' INSTITUTIONS. SOCIETY FOR THE DIFFUSION OF USEFUL KNOWLEDGE.

The history of the *Mechanics' Institution* through all its phases of development, from the earliest young men's mutual improvement society established in London, in 1690, with the encouragement of Defoe, Dr. Kidder, and others, under the name of "Society for the Reformation of Manners"—the Society for the Suppression of Vice—the "Reformation Society of Paisley" in 1787; the Sunday Society in 1789, the Cast Iron Philosophers in 1791, the first Artisans' Library in 1795, and the Birmingham Brotherly Society in 1796, all among the working classes of Birmingham;—the popular scientific lectures of Dr. John Anderson, to tradesmen and mechanics in Glasgow, in 1793—the establishment of the Anderson's University at that place in 1796, and the incorporation into it of a gratuitous course of elementary philosophical lectures by Dr. Birkbeck in 1799, for the benefit of mechanics,—the Edinburgh School of Arts in 1821, the Glasgow Mechanics' Institute, the Liverpool Mechanics' and Apprentices' Library, and the London Mechanic Institution in 1823—which from this date, through the labors of Dr. Birkbeck, Mr. Brougham and others, spread rapidly all over the kingdom until there are now over 700 societies scattered through every considerable village, especially every manufacturing district in the kingdom, numbering in 1840, 120,000 members, 408 reading-rooms, and 815,000 volumes—constitute one of the most interesting chapters in the educational or social history of Great Britain.

In 1825, as one of the direct results of the extended and growing interest in mechanic institutions and popular libraries, the "Society for the Diffusion of Useful Knowledge" was formed; which commenced immediately a series of cheap and useful publications in a great variety of subjects, and thus led the way to a new era in English literature—the preparation of books adapted in subject and mode of treatment, as well as in price, to the circumstances of the great mass of the people. In 1831, this society commenced a quarterly journal of education, which was discontinued in 1836, at the close of the tenth volume. In 1836, two volumes of essays on education, several of them delivered as lectures before the American Institute of Instruction, were published by this society. These twelve volumes, and the four volumes published by the Central Society of Education, composed of several of the most active and liberal-minded members of the former society, contributed a large mass of valuable information as to the organization, administration, and instruction of public schools in different countries, and prepared the way, in 1839, for the appointment of the Committee of Privy Council on Education. Besides these educational works, the society published other books, comprehended within the intended scope of its action, to the number, in all, of more than two hundred volumes. Among these were the "*Penny Magazine*;" the "*Penny Cyclopædia*;" a series of more than two hundred maps; a "*Gallery of Portraits*," in seven volumes; "*Statistics of Great Britain*," by Mr. M' Culloch, in five volumes; a complete series of agricultural works; two extensive series of volumes called the "*Library of Entertaining Knowledge*," and the "*Library of Useful Knowledge*," which were published in parts or pamphlets; De Morgan's "*Differential and Integral Calculus*;" tables of logarithms and numbers, and of statistics on annuities, savings banks, and mechanics' institutes. The

society also commenced a "*Biographical Dictionary*," on a magnificent scale and of great value; but this was unfortunately discontinued after the publication of seven volumes, containing letter A. The circulation of the preliminary discourse to this series of publications, reached 100,000 copies; that of the weekly "*Penny Magazine*," over 200,000; of those of its books of a more popular character, sometimes 40,000; and of many of the scientific ones, 25,000.

#### FRANKLIN'S CLUB FOR MUTUAL IMPROVEMENT.

Franklin formed a Lyceum, in effect though not in name, in Philadelphia, in 1727, of which he gives the following account in his "*Autobiography*."

In the autumn of the preceding year, (1727,) I had formed most of my ingenious acquaintance into a club for mutual improvement, which we called the Junto; we met on Friday evenings. The rules that I drew up required that every member, in his turn, should produce one or more queries on any point of morals, politics, or natural philosophy, to be discussed by the company; and once in three months produce and read an essay, of his own writing, on any subject he pleased. Our debates were to be under the direction of a president, and to be conducted in the sincere spirit of inquiry after truth, without fondness for dispute, or desire of victory; and, to prevent warmth, all expressions of positiveness in opinions, or direct contradictions, were after some time made contraband, and prohibited under small pecuniary penalties.\*

The club was the best school of philosophy, morality, and politics that then existed in the province; for our queries (which were read the week preceding their discussion) put us upon reading with attention on the several subjects, that we might speak more to the purpose; and here too we acquired better habits of conversation, every thing being studied in our rules which might prevent our disgusting each other; hence the long continuance of the club.

At the time I established myself in Pennsylvania, there was not a good book-seller's shop in any of the colonies to the southward of Boston. In New-York and Philadelphia, the printers were indeed stationers, but they sold only paper, &c., almanacs, ballads, and a few common school-books. Those who loved reading were obliged to send for their books from England; the members of the Junto had each a few. We had left the alehouse, where we first met, and hired a room to hold our club in. I proposed that we should all of us bring our books to that room; where they would not only be ready to consult in our conferences, but become a common benefit, each of us being at liberty to borrow such as he wished to read at home. This was accordingly done, and for some time contented us. Finding the advantage of this little collection, I proposed to render the benefit

\* Dr. Franklin's account of the members of this club is amusing. "The first members were Joseph Brientnal, a copyer of deeds for the scrivener; a good natured, friendly, middle-aged man; a great lover of poetry, reading all he could meet with, and writing some that was tolerable; very ingenious in making little nicknackeries; and of sensible conversation, Thomas Godfrey, a self-taught mathematician, great in his way, and afterward inventor of what is now called *Hadley's Quadrant*. But he knew little out of his way, and was not a pleasing companion; as, like most great mathematicians I have met with, he expected universal precision in every thing said, or was forever denying or distinguishing upon trifles, to the disturbance of all conversation; he soon left us. Nicholas Scull, a surveyor, afterward surveyor-general, who loved books, and sometimes made a few verses. William Parson, bred a shoemaker, but loving reading, had acquired a considerable share of mathematics, which he first studied with a view to astrology, and afterward laughed at it; he also became surveyor-general. William Mangridge, joiner; but a most exquisite mechanic, and a solid, sensible man. Hugh Meredith, Stephen Potts, and George Webb, I have characterized before. Robert Grace, a young gentleman of some fortune; generous, lively, and witty; a lover of punning, and of his friends. Lastly, William Coleman, then a merchant's clerk, about my age, who had the coolest, clearest head, the best heart, and the exactest morals of almost any man I ever met with. He became, afterward, a merchant of great note, and one of our provincial judges. Our friendship continued, without interruption, to his death, upward of forty years."

from the books more common, by commencing a public subscription library. I drew a sketch of the plan and rules that would be necessary. So few were the readers at that time in Philadelphia, and the majority of us so poor, that I was not able, with great industry, to find more than fifty persons (mostly young tradesmen) willing to pay down for this purpose forty shillings each, and ten shillings per annum; with this little fund we began. The books were imported; the library was open one day in the week for lending them to subscribers, on their promissory notes to pay double the value if not duly returned. The institution soon manifested its utility, was imitated by other towns, and in other provinces. The libraries were augmented by donations; reading became fashionable; and our people, having no public amusements to divert their attention from study, became better acquainted with books; and in a few years were observed by strangers to be better instructed, and more intelligent, than people of the same rank generally are in other countries.

This library afforded me the means of improvement by constant study; for which I set apart an hour or two each day, and thus repaired in some degree the loss of the learned education my father once intended for me. Reading was the only amusement I allowed myself. I spent no time in taverns, games, or frolic of any kind, and my industry in my business continued as indefatigable as it was necessary. My original habits continuing, and my father having, among his instructions to me when a boy, frequently repeated a proverb of Solomon, "*Seest thou a man diligent in his calling, he shall stand before kings, he shall not stand before mean men,*" I thence considered industry as a means of obtaining wealth and distinction, which encouraged me; though I did not think that I should ever literally stand before kings, which however has since happened, for I have stood before five, and even had the honor of sitting down with one (the King of Denmark) to dinner.\*

The late Dr. Smith, provost of the University of Pennsylvania, in his discourse upon the death of Dr. Franklin, alludes to the Junto in the manner following. The questions, which he has selected from those discussed in that club, are curious as a sample of the diversity of their inquiries, and may still be interesting topics of discussion in our Lyceums.

"This society, after having subsisted forty years, and having contributed to the formation of some very great men, besides Dr. Franklin himself, became at last the foundation of the American Philosophical Society, now assembled to pay the debt of gratitude to his memory. A book, containing many of the questions discussed by the Junto, was, on the formation of the American Philosophical Society, delivered into my hands, for the purpose of being digested, and in due time published among the transactions of that body. Many of the questions are curious and cautiously handled; such as the following:—

How may the phenomena of vapors be explained?

Is self-interest the rudder that steers mankind; the universal monarch, to whom all are tributaries?

Which is the best form of government, and what was that form which first prevailed among mankind?

Can any one particular form suit all mankind?

What is the reason that the tides rise higher in the bay of Fundy than in the bay of Delaware?

How may the possession of the lakes be improved to our advantage?

Why are tumultuous, uneasy sensations united with our desires?

Whether it ought to be the aim of philocephy to eradicate the passions?

How may smoky chimneys be best cured?

Why does the flame of a candle tend upward in a spire?

Which is least criminal, a *bad* action joined with a *good* intention, or a *good* action with a *bad* intention?

Is it consistent with the principles of liberty, in a free government, to punish a man as a libeller when he speaks the truth?

These, and similar questions of a very mixed nature, being proposed in one evening, were generally discussed the succeeding evening, and the substance of the arguments entered in their books."

\* Franklin's Memoirs and Works, Vol. I, pp. 62, 63, &c.

## NOTE C.

## TIMOTHY CLAXTON.

TIMOTHY CLAXTON\* was born at Earsham, Norfolk, in England, on the 22nd of August, 1790. His father was a gardener in the service of the Windham family, at Earsham Hall—honest and industrious; but, as was his mother, not able to read or write. They did their best to secure for their children an education, and in this were assisted by the Hon. Mrs. Windham, who, while she lived, kept six boys and six girls at school, for two years each. When thirteen years old, he was apprenticed to a white-smith; which craft he acquired, and practiced for thirty years. With the first money, (a half-guinea,) which he received as a Christmas-box, from his master's customers, he bought a Bible, and a thick cyphering-book; and in the latter commenced, forthwith, to prosecute his arithmetical studies; and, as he grew older, exercising his mechanical ingenuity in making all sorts of curious and artful machines. During his minority, he was often called on to write letters for his father, and his neighbors; and thus acquired facility in composition. He, at the same time, began to practice drawing. In 1810, he removed to London; and, for the first time, saw a steam-engine, heard a lecture, and read a book on subjects connected with the arts and sciences. When just turned of twenty-one years of age, he attended a weekly course of popular lectures on natural philosophy, by Mr. Tatum; taking notes, and afterward writing out the lectures as full as he could recollect, and making drawings of the apparatus. He also procured and read a book on the same subject. In 1816, he succeeded in getting up a mechanical institution,† which was in operation for three years, to the great good of the active members. In 1820, Mr. Claxton went to St. Petersburg, (Russia,) to put up apparatus for making gas, and illuminating one of the governmental offices. He improved the opportunities of visiting the public galleries and gardens. In June, 1823, he left Russia for the United States, and landed in Boston, Massachusetts, studying mathematics on the voyage. In September, 1823, he engaged to work in a machine shop, connected with a cotton factory, in Methuen, Essex county. In his autobiography, Mr. Claxton thus described one of the first, if not the earliest, lyceum established in this county.

In the spring of 1824, however, an opportunity offered itself for me to attempt the formation of a society for mutual improvement. A discourse was delivered in the afternoon of Fast-day, by the clergyman of the village, on the importance of knowledge, and the facility with which it can be obtained, by a judicious arrangement of our time, and by associating together for mutual benefit. In fact, he expressed my views so well, that I felt confident of a kind reception from him; and I accordingly waited on him the same afternoon.

After stating my views, and presenting him some papers on the subject, he informed me that a small society for reading had existed for about five years in the village, but

\* This brief memoir is gathered from a useful little volume, entitled, "*Memoir of a Mechanic*," or the Life of Timothy Claxton. Boston: G. W. Light, 1839, pp. 179.

† The London Mechanics' Magazine, for February, 1831, says: "We always thought that it was a fact, beyond all dispute, that the present London Mechanics' Institution was the first establishment of the kind in the British metropolis; but it appears from these documents that, several years before we thought of calling upon the mechanics of London to form an association for cultivating a knowledge of the principles of the arts they practice, some of these mechanics had already done so among themselves, and of their own accord. The institution we allude to was established in August, 1817—about five years before the foundation of the present London Mechanics' Institution—and differing as little from it in name as in character, being called "The Mechanical Institution." In an Introduction to the Code of Laws of this Mechanical Institution, "Printed by J. Mills, Shoe-lane," it is said to have been "established for the purpose of disseminating useful knowledge among its members, and their friends, by attending lectures and discussions on various branches of science."

was at a very low ebb at that time.\* He was pleased with my proposals, and invited me to attend the next meeting of the society.

I attended, and found a respectable number of both sexes assembled at the house of one of the members. They were engaged in reading, by turns, from Whelpley's Compend of General History; and the president put questions to them, as they proceeded, which made it interesting. At the close of this exercise, he asked me how I liked it. "Very well," was my reply. I then inquired what other exercise they had. He told me that was all, except an annual address, which he delivered himself. I asked him if it would not be well to try the debating of questions, and familiar lectures on science and the arts. He said he thought well of it, but they felt very cautious how they ventured from shore, lest they should get into deep water. I told him I thought they need not be afraid; for I had seen persons engaged in such exercises, whose opportunities for intellectual improvement were inferior to theirs. I was asked if I could give them a lecture. I said I would try; and prepared myself accordingly.

I had brought a small air-pump with me from Russia, which I made of a piece of gas-tubing, with a ground brass plate, on a mahogany stand. I bought a few glass articles, which I ground, to fit the pump-plate, with a little sand and water, on the hearth-stone of my room. I procured a small wash-tub, and fitted a shelf to it, for a pneumatic cistern. In this way, I succeeded, with a very simple apparatus, in explaining the mechanical, and some of the chemical properties of air.

This put new life into the society. Their constitution was revised, to make provision for a library and apparatus. Debating was also introduced with success; and the ladies handed in compositions, which were read at the meetings. The reading exercise was pursued only occasionally. Several of the members were prevailed upon to give lectures on subjects connected with their professions, unless some particular branch of knowledge had been studied by them. It required considerable effort on the part of the more active members to bring those forward who were very diffident. More than one case occurred, however, in which gratitude was felt by those who had thus been roused to action.

I served as vice-president of the society during the remainder of my stay in the town, and took an active part in its exercises.

The society continued to meet at the members' houses, until it became too large to be thus accommodated. They then tried the school-house, and the hall at the tavern; but, not being satisfied with either of these, they built a two-story building for their own accommodation, at an expense of twelve hundred dollars, of which I furnished my full share. The building was completed within two years from the time I was introduced to the society. The hall was let to another society; and there were two mechanics' shops under it.

Since this time, the society has been quite prosperous. The exercises were weekly, in the following order:—1. Reading by all the members; 2. Reading by one member, selected for the purpose; 3. An original lecture; 4. Discussion. This monthly course was continued for one year after the new hall was completed.

In October, 1826, Mr. Claxton removed to Boston, where, in 1829, he engaged in making and selling apparatus for illustrating the various sciences.

After I had been in Boston three or four years, Mr. Josiah Holbrook, a gentleman much engaged in the establishment of lyceums, came to me to see about apparatus, as he was trying to introduce such cheap and simple instruments into schools, and other seminaries of learning, as would come within their means. He had already several articles for illustrating geometry, astronomy, &c.; but air-pumps were not then simplified enough to form a part of the lyceum apparatus. At this interview, I introduced to his notice a small air-pump for exhausting and condensing, and several articles of apparatus to be used with it, which I had made for the amusement of myself and my friends. He frankly acknowledged it to be the very thing that was wanted in the smaller establishments for education. He wished me to make some for sale, and promised to recommend them, which he did not fail to do. From this interview I may date the commencement of my making philosophical instruments as a regular business.

In the summer of 1835, his shop and ware-rooms were destroyed by fire; but, as he was fully insured, he resumed business promptly, taking into partnership his principal workman, Mr. J. M. Wightman, who had been, from the first, his "right-hand man."

\* The first meeting of the Methuen Literary Society was held December 7th, 1819, when it was voted to accept a constitution which had been prepared; and the persons present constituted themselves a society, for the purpose of reading and the promotion of useful information, with the title of "The Methuen Social Society for Reading and General Inquiry." A number of useful and interesting works were read by the society, in succession. Not long after the formation of the society, it contained between forty and fifty members, male and female. Afterward, the interest abated, and the number of members diminished. Finally, in the autumn of 1823, there were but four or five regular attendants; and a consultation was held on the subject of dissolving the society.

During this period, Mr. Claxton was active and influential in improving the means of popular education in Boston. He says:—

On my arrival in Boston, my first object was, to make inquiries respecting mechanics' societies; but I was surprised to learn that no society existed to which a mechanic could resort, and hear lectures on subjects calculated to aid him in his vocation. There had been some talk of building a mechanics' hall, &c.; but that project was abandoned. I conversed with several persons on the subject, who were willing to assist in forming a society for mutual improvement. I put a notice in the newspaper, stating where names would be received, and finally called a meeting, which was attended by nine persons; and a second, which was attended by only seven. At this meeting it was determined to make the thing more popular, by advertising it in the daily papers, and hiring a hall in a central situation. The next meeting was held at Concert Hall, and was very well attended. The result was the formation of the Boston Mechanics' Institution. This was in 1826.

The society soon became popular, which induced others to follow the example thus set. Being the first society in Boston that introduced popular lectures on various branches of science, it would seem rather strange that it did not continue longer. I have formed my own ideas as to the causes of its decline. Not the least of these, I should say, was its unsocial character. A course of lectures merely, during the winter, was all that the managers ever attempted: no library, reading-room, nor classes. A class on mechanical science was indeed formed, by members of the institution, with the expectation that the managers would give it encouragement, and own it as a branch of the institution; but they merely appointed a committee to consider the subject, with power to furnish a room for the class. They decided, however, that it was inexpedient; and some of the board thought it wrong to take the funds of the society for the purpose. The class might have supported itself, if persons could have been admitted who were not members of the institution; but the rules of the class forbade it. In fact, the class adhered too closely to the rules of the parent for its own benefit; and was finally discontinued, for want of a little of that fostering care which the managers might have bestowed, with advantage to the parent institution as well as to the class.

The plan of classes in connection with a large institution is better, in some respects, than so many small, independent societies, which are generally of short duration, as the removal of one or two active members is often sufficient to discourage the others, and sometimes to break up the society. The classes, on the other hand, can be filled up, from time to time, as long as they take an interest in the subject; and, when that fails, other classes may be formed, on subjects in which an interest is taken. By the concentration of talent and energy, with the various facilities afforded by a popular institution, the classes can be conducted with more economy, and greater benefit, than can in general be secured by the smaller societies for mutual improvement. Still, I would not depreciate the latter, which will do much good wherever they are carried on with the proper spirit; and there are many places where no other kind will succeed.

Among the many kindred societies that had adopted measures similar to those of this institution, may be named, as its greatest rival, the Massachusetts Charitable Mechanic Association. This was an old and powerful society, with plenty of funds; but the members were very careful how these funds were spent. For a long time, individual members had been trying to introduce something of an improving nature into the society; but, when the lectures were named, there were always a host against any such thing. The following has been related to me, as a specimen of the kind of opposition the liberal members had to contend with:—

A proposition was made for a course of lectures on chemistry; on which a sensible member exclaimed, "What good will chemistry do us? If we want medicine, the cheapest way is to get it at an apothecary's shop." And, strange to say, such remarks, the offspring of very contracted views, had more weight with the majority than any thing that could be urged in favor of the proposed measure.

The association remained in this state when the Mechanics' Institution was formed; but the popularity of the latter soon brought the members of the former to their senses, and they actually voted one hundred dollars to a gentleman for a course of twelve lectures, which were delivered simultaneously with the second course given by the institution. From that time, the association has been progressing steadily; and there is some reason to hope that it will do much good in the end; for I have recently been informed that they are going on bravely in the work of improvement. "*Mirabile dictu!*" says my American correspondent, in 1837, "what can you guess has happened—a new comet discovered, caught, and analyzed, or one of the men in the moon fallen off and alighted among us, to prove the moon-story of last summer a hoax? No; not quite equal to that, but quite as improbable. The Mechanic Charitable Association have actually appropriated five thousand dollars, Boston currency, to get up a fair, like the New Yorkers and Philadelphians, next October. This is the consequence of a drubbing given them by their orator, Mr. Homer, at their last triennial celebration."

The Mechanics' Institution commenced on a liberal plan, paying twenty-five dollars for each of their lectures, which were so well attended that a repetition of them was



practiced for some time, when forty dollars were paid for each lecture delivered twice. By such a course, the managers were enabled to procure several good lectures, from regular professors, and to afford encouragement to other gentlemen of talent to prepare themselves. In this way lectures were supplied for several years; and it is to be regretted that they could be no longer kept up. But it is some consolation to those who were the means of setting this intellectual and moral machinery in motion, in the capital of New England, to remember that it was effected by the Boston Mechanics' Institution, in the winter of 1826-7.

In the summer of 1829, I took part in the formation of the Boston Lyceum. I was elected one of its curators; gave several lectures during the two first seasons, and assisted in conducting some of the classes. After that time, my attention to the society was relaxed, in some degree, by the formation of the Boston Mechanics' Lyceum, and my appointment as its president, which office I held from February, 1831, until the termination of the fifth course of exercises, in 1835. These exercises consisted of lectures, debates, declamations, and, occasionally, extemporaneous speaking—that is, speaking on a subject as soon as it is proposed. They were conducted on the mutual instruction principle, by the members alone, who were enabled to pursue this plan to advantage, after being well drilled to it in small classes.

This society has been often referred to, as a specimen of what mechanics and others might do for themselves, by suitable efforts. It has furnished speakers for other societies, engaged in various pursuits; and I might refer to one of the members, who used frequently to speak at temperance and other meetings, with good effect. One evening, I heard it remarked of him that he learned to speak at the Mechanics' Lyceum, which made me feel gratified, especially as this member had expressed a doubt of the success of the lyceum at its formation. I had been speaking encouragingly to the members, when he remarked, "That is all very well, if we can make it go." I devoted some of my best efforts to this society; and we did make it go—better, in fact, than many had anticipated.

The members had the privilege of introducing ladies to the exercises, who were permitted to hand in pieces of composition, which were read at the meetings.

In 1832, I was appointed one of the committee of the Franklin Lectures, got up for the benefit of those who were prevented from attending other courses, on account of their expense, and the early hour at which they commenced. These lectures, beginning an hour later, and being afforded at one-fourth of the usual price, (which was accomplished by having most of the lectures gratuitous, and by the ready sale of the tickets, which, in some seasons, amounted to a thousand or more,) gave to the class they were intended to benefit a most valuable opportunity. The duty which I performed was merely that of assisting the committee in their deliberations, and giving an occasional lecture.

In June, 1836, Mr. Claxton left Boston, and visited England. There, his zeal for popular improvement led him to assist in getting up lyceums, and lecturing before mechanics' institutions; and, finally, to an engagement with the Central Society of Education, to superintend the manufacture of school apparatus, similar to what he had been making in Boston.

### XIII. THE PUBLIC OR FOUNDATION SCHOOLS OF ENGLAND.

In place of an article for which we have gathered material in our reading, we subjoin some valuable extracts and statistics from a paper "*On the Foundation Schools of England*," read before the *National Association for the Promotion of Social Science*, in 1857, by Rev. John Day Collis, M. A., head-master of Bromsgrove School, which we shall follow up with interesting and instructive notes from Timbs' "*Sketches of the Progress of Education in England*."

"Where is it that our rising legislators receive their first lesson in cheerful obedience to lawful authority—and I may add, in jealous watchfulness against the excess of lawful authority, or against the growth of tyranny—but in our public schools? Where do they so surely learn to curb their tongues, control their angry passions, conquer their temptation to selfishness, overcome the fear of each other, and learn to speak out boldly in defence of the weak, or in the cause of truth? Where do they acquire habits of self-reliance and manly independence? Where do they learn that submission to lawful discipline is perfect freedom, and that law is a kind though (when they kick against it) a stern master? Where do they learn first to govern themselves, and then to govern others, and so become trained for the onerous duties of magistrates, legislators, instructors of others, as at our public schools? Where do they learn gradually the use of money, the use of time, the responsibility of strength, (mental or bodily,) the responsibility of influence, the necessity for long-sustained and well-regulated exertion? Where do they acquire habits of industry, habits of thoughtfulness, habits of close application, as in the scholastic contests of their boyhood?

Where can be joined such a thorough freedom of play for all that is in a boy of good and noble as in our public schools? Where such a judicious mixture of liberty and restraint? Where is a boy so thrown upon his own good principle and firmness, and yet protected from the rougher and coarser forms of temptation, as in the guarded, and yet free, atmosphere of a public school? When we look at these noble and distinguishing institutions of our country, can we wonder at the Duke of Wellington's watching the boys of Eton in their playing-fields, and thinking that it was there Waterloo was won—that such training as there exists, and has existed for centuries, matures the heroic and manly temper of Englishmen into stern fulfillment of duty, stern defence of the injured and the weak, stern repression of the unjust aggressions of other nations.

Can we wonder at the large share Montalembert gives to the public school-life of English boys in the acknowledged superiority of England?

Can there be a more striking contrast than that which exists between the cramped and confined and constantly-watched training of a foreign school-boy, and the free and healthy play of life and vigor and self-reliance in an English school-boy? Where such results are visible and undeniable, there must be some potent influence at work, to have first established and then maintained it in such vigor for so long a time.

To what can we attribute this traditional training of all our public men, our legislators, our clergy, our barristers and judges, our physicians, our county magistrates, our country gentlemen, but to the fact of the strong impress which our school education—with its wholesome mixture of freedom and restraint, of lessons and games, of internal self-government under the authority of a responsible head—has stamped upon successive generations of Englishmen?

Of the importance which has ever been attached in England to such traditional training we can have no stronger proof than in the great number and variety of our Foundation Schools. Until one looks closely into the matter, it would scarcely be believed how rich England is in such institutions, and their number is hardly more surprising than their inherent vitality. Years pass on—generations die out, dynasties change, revolutions are accomplished—but, through lapse of time, and change of circumstance, here last these wondrous schools of England: one, like Wantage, claiming, with every appearance of truth, Alfred for its founder; others founded but as yesterday, and gaining success just so far as they keep up with the main traditional type of grammatical training. While so much changes around, "these most English institutions in England," as they have been called by the "*Times*" in a recent review of that racy school-book, "*Tom Brown's School-Days*," "these most English institutions in England" have shown a tenacity of life and a vivaciousness such as could only have resulted from the wise system on which they are conducted, as well as from the wise forethought that founded and endowed them. \* \* \*

A few statistics as to the dates and numbers of our grammar schools may be interesting.

Of course both the invention of printing and the breaking up of the Greek empire, on the capture of Constantinople by the Turks, in 1453, and the consequent spread of the culture of the Greek language in the south and west of Europe, had an immense effect upon education, amongst other ways, in stimulating the foundation of schools; but far beyond these two causes in efficacy must we place the Reformation, with its attendant breaking up of the monastic system. The dissolution of the monasteries gave both an incitement to the foundation of free grammar schools, in order to supply the place of the monastic schools which were thereby broken up, and furnished large pecuniary means for their endowment.

Of schools whose date is ascertained, and which were antecedent to the foundation of Eton College, in the reign of Henry VI., there are but eight—Derby, Huntingdon, Newbury, Ashburton, Wisbeach, Hereford,

Wotton-under-Edge, Sevenoaks, and Winchester College, the date of which is 1387. (Richard II.)

In the reign of Henry VI., Eton was founded, in 1441, and three others, Ewelme and Towcester and the City of London, (revived in 1834.) In the reign of Edward IV., four; Edward V., none; Richard III., only one, and that not due to the king, but to William of Wainfleet, the founder of Magdalen College, Oxford.

In the reign of Henry VII., the tide in favor of the foundation of grammar schools begins to set in rapidly, and goes on with steady increase till the reign of James II., when it as rapidly begins to ebb; and in the reign of William IV. I can find but one, and in the reign of the present queen also but one grammar school, of the old type, and calling itself a grammar school, founded.

In the reign of Henry VII., twelve schools were founded; including those of Reading, Wimborne Minster, and Bridgnorth.

In the reign of Henry VIII., no less than forty-nine were founded; including Manchester, Taunton, Barkhamstead, and Warwick, and the cathedral schools attached to St. Paul's, London, Bristol, Worcester, Ely, Durham, Peterborough, Canterbury, Rochester, Chester, Gloucester, Coventry, and Carlisle.

In the reign of Edward VI., short though it was, the prudent forethought of Cranmer procured or gave the stimulus to the erection of no less than forty-four schools; including those of Norwich, Lichfield, Sherborne, Bury St. Edmunds, Sudbury, Macclesfield, Shrewsbury, Bedford, Birmingham, Leeds, Ludlow, St. Alban's Bath, Southampton, Giggleswick, my own school at Bromsgrove, and, beyond all others in the substantial aid it has given to thousands of parents in the feeding, clothing, and educating of their children, at Christ's Hospital, London.

In the reign of Mary, twelve schools were founded; including those of Ripon and Repton.

Queen Elizabeth carried on vigorously and effectively the educational movement begun by her father, and continued by her brother. Long though her reign was, yet equally long is the list of schools founded during the years she held sway. No less than 115 date from her reign; and among them, Westminster, (1560,) Merchant Taylor's, (1561,) Guernsey, (1563,) Ipswich, (1565,) Richmond, (1567,) Rugby, (1567,) Cheltenham, (1578,) St. Bee's, (1583,) and Uppingham, (1584;) all now effective and flourishing schools, doing large work in the education of this day.

In the reign of James I., forty-eight were founded; including Charterhouse, (1611,) and Dulwich, (1618,) and others of less note.

The disturbances of the reign of Charles I. had their effect in preventing the foundation of schools. Only twenty-eight date from his time, none of any remarkable note at the present day.

In the interval between the death of Charles I. and the Restoration, sixteen were founded.

In the reign of Charles II., thirty-six.

In the reign of James II., only four.

- In the reign of William and Mary, seven.
- In the reign of Anne, eleven.
- In the reign of George I., seventeen.
- In the reign of George II., seven.
- In the long reign of George III., only twelve.
- In 1837, Tavistock.

In 1842, Southampton Diocesan School; and so ends the list, which, commencing with Wantage, in the reign of Alfred, contains 436 schools, 422 of which have sprung into existence in the 435 years that have elapsed since the foundation of Eton College, by Henry VI., in 1441.

There can be no doubt that hundreds of schools existed in the monasteries, and fell with them. This fact will account for the few schools which can date before the Reformation. The desire to supply their place will account for the vast outburst of educational foundation which marks that great epoch. The spoils of the monasteries no doubt, in many schools, especially those of royal foundation, supplied the endowment for the new institutions.

With regard to the future, a long reflection on the subject suggests to the mind the desirableness,

1. Of having (besides the *great* public schools) from two to six thoroughly good grammar schools in each county, so as to place a thoroughly sound classical education, of a high stamp, within the reach of all who require it.
2. The improvement of the smaller endowed schools, so as to afford a good practical middle-class education for the majority, who do not go to the universities; the head-master might teach the few classical pupils wholly, the other master or masters give a good English education, of an enlarged and improved kind, with the elements of Latin, mathematics, and, if required, French.
3. The enlarging of the curriculum of learning in all schools, by introducing such a system of instruction in history, geography, and modern languages, combined with classics, as Dr. Arnold had the boldness to originate at Rugby, and which in twenty years has pervaded all the best schools in the kingdom. The necessity for a modern department has increased of late with the increase of competitive examinations for the public service, the army, India, &c.
4. The charity commissioners ought to be armed with peremptory powers (to be *cheaply* applied) for modifying ancient foundations; not destroying their old character, but adding many new features, called for by the lapse of time and change of circumstances.
5. And, in modifying the endowments, care should be taken to arrange them so that both master and pupil shall be stimulated to exertion thereby, and no pensioning of laziness and inefficiency allowed. To effect this, there is nothing so good as the foundation of scholarships or exhibitions.
6. There ought to be some means of necessitating the retirement, and providing for the support, of superannuated masters of schools."

We give below, mainly from Timbs' "*School Days of Eminent Men*," brief accounts of the principal Endowed Grammar Schools, which enjoy more particularly the reputation of being the PUBLIC SCHOOLS of England.

WILLIAM OF WYKEHAM AND WINCHESTER COLLEGE.

Winchester Grammar or Collegiate School, was founded by William of Wykeham, Bishop of Winchester, in 1378, as a preparatory school to the College which he, about the same time, began to build at Oxford, known as New College,—the two, embracing a perfect course of education from the elements of letters through the whole circle of the sciences. The generous founder was born in the village of Wykeham, in Hampshire, in 1324. By the liberality of Sir Nicholas Uvedale, governor of Winchester Castle, the boy Wykeham was sent to "the Great Grammar-school in Winchester," originally an institution for education founded before the Conquest. Uvedale next presented Wykeham to Edward III. for his skill in architecture. In the short space of four years he was promoted through civil and ecclesiastical grades, to be Bishop of Winchester and Lord High Chancellor. He had already commenced the building of New College at Oxford; and in the following year, with the view of taking the early education of youth out of the hands of the monks, "it was his admirable thought to raise a nursery school, preparatory to his co-operating with a higher course in his college; and thus to raise the standard of education in the country, to that stamp and character which has ever since (through his institution and the copies which were drawn from it,) distinguished the English gentlemen amongst the families of Europe." Thus arose Winchester College, the scholars of which are designated to this day *Wykehamists*. The novelty and merit of the plan were imitated by Chicheley,\* at All Souls, Oxford; Henry VI. at Cambridge; and Waynflete at Magdalene. "Twenty years before his hives were built (1378), Wykeham had gathered his swarming bees under temporary roofs, with masters and statutes; which with parental solicitude he watched, altered, and amended from time to time, by his daily experience. So long before his colleges were built was his institution effective." Wykeham died in 1404, at the age of eighty years, with the respect and admiration and gratitude of all; and like the spirit which he had ever sought throughout his amiable life, "length of days were in his right hand, and in his left riches and honor." He is buried in Winchester Cathedral: "beneath the spot where the schoolboy prayed, the honoured prelate sleeps."—(*Walcott*.)

Wykeham's College buildings stand immediately adjoining the main street of Winchester, a city of kindred quiet. The Middle Gate Tower has under three canopied niches, the Angelic Salutation, and the Founder in prayer. This gateway leads to a truly noble quadrangle of Wykeham's architecture. On the left side is the dining-hall, with an oaken roof finely carved with the busts of kings and prelates; and in the centre is a louvre, through which the smoke ascended in old times, when the scholars gathered round the hearth to sing and listen to the tales of the chroniclers. Here also plays were acted in the days of the Tudors; the boy-bishop custom was observed as at Eton; and monarchs, prelates, and nobles have been feasted. On the south side of the quadrangle is the chapel, with an oaken roof of fan tracery; the large window, forty feet in height, is

\* Chicheley, Archbishop of Canterbury, was a Wykehamist; as was apparently Waynflete, who certainly was master of Wykeham's school in 1422.



filled with painted glass, as are also the side windows. Next are the cloisters, surrounding an area, in the centre of which is the former chapel, now the library. Beyond is the Public School; it was built in 1687 chiefly by subscription among Wykehamists, and is the noblest structure of the kind in the kingdom. Upon the walls are inscribed in Latin the admonitions and rules for the government of the scholars; on the west wall are painted upon a large tablet, a mitre and crozier, the rewards of clerical learning; a pen and inkhorn and a sword, the ensigns of the civil and military professions; and a Winton rod, the dullard's quickener: beneath each symbol is its apt legend: "Aut discere," "Aut discede," "Manet sors tertia cædi."—"Either learn;" "or depart;" "or in the third place be flogged;" underneath is the flogging-place. On the east wall is a corresponding tablet, bearing the School laws, in Latin. The Chamber walls are covered with the names of many an illustrious Wykehamist; but, the most interesting memorial is the Seventh Chamber and the adjoining passage. This "was the ancient school wherein Waynflete taught, and was called by the founder, '*Magna illa domus*:' the stone 'books' in the embayed windows still remain; it could accommodate scarcely more than ninety boys." At present, the foundation scholars at Winchester are limited to 70; and the commoners are in general about 130. The College and its Grammar School differ little in management from Eton. Among its characteristic customs is the chanting of the Latin song "*Dulce Domum*," to which justice can not be done in any English translation. It is sung in College Hall on the six last Saturdays of the "long half" before "evening bells;" and at the July festival:

Nations, and thrones, and reverend laws, have melted like a dream,  
Yet Wykeham's works are green and fresh beside the crystal stream;  
Four hundred years and fifty their rolling course have sped,  
Since the first serge-clad scholar to Wykeham's feet was led:  
And still his seventy faithful boys, in these presumptuous days,  
Learn the old truth, speak the old words, tread in the ancient ways:  
Still for their daily orisons resounds the matin chime—  
Still linked in bands of brotherhood, St. Catherine's steep they climb;  
Still to their Sabbath worship they troop by Wykeham's tomb—  
Still in the summer twilight sing their sweet song of home.

*Roundell Palmer's Anniversary Ballad.*

Another eminent Wykehamist, the Rev. Mackenzie Walcott, M. A., has commemorated in his *William of Wykeham and his Colleges* the glories of Winchester, with an earnest eloquence, and affection for this school of near five centuries, which accompanies the reader through every page of Mr. Walcott's volume. It is delightful to see with what pride the author contemplates "the success of a school, which in its earliest days produced Chicheley and Waynflete, the founders of the two grandest colleges in our ancient universities; the gentle Warham; Grocyn, the reviver of the Greek language; the philosophic Shaftesbury and profound Harris; the moralist, Browne; among poets—some of them distinguished ornaments of the Augustan age—Otway, Young, Collins, Somerville, Phillips, Crowe; the learned Bilson, Burgess, Lowth, and meek Ken; the graceful Wotton; among judges, Erle and Cranworth; among speakers, Onslow, Cornwall, Sidmouth, and Lefevre; among seamen, Keats and Warren; among soldiers, Lord Guildford, Seaton, Dalbiac, Myers, and their gallant companions in the hard-fought fields of the last war. . . . It has never failed in contributing its share of faithful men to serve the country in Church and State; it

has well sustained the reputation which should attach to the only ancient institution not founded by a sovereign which boasts itself to be a royal college."

HENRY THE SIXTH AND ETON COLLEGE.

Henry VI. was born at Windsor, in 1821, and educated by his uncle, Cardinal Beaufort, in all the learning of the age. Hall, the chronicler, when speaking of the causes which led him to found Eton College, and King's College, Cambridge, says of him: "he was of a most liberal mind, and especially to such as loved good learning; and those whom he saw profiting in any virtuous science, he heartily forwarded and embraced." An ingenious writer of our own time has, however, more correctly characterized the young King's motive: "still stronger in Henry's mind was the desire of marking his gratitude to God by founding and endowing some place of pious instruction and Christian worship." Henry seems principally to have followed the magnificent foundations of William of Wykeham at Winchester and Oxford; resolving that the school which he founded should be connected with a college in one of the Universities, whither the best of the foundation scholars of his school should proceed to complete their education, and where a permanent provision should be made for them. Standing upon the north terrace of Windsor Castle, near Wykeham's tower, and looking towards the village of Eton, upon the opposite bank of the silver-winding Thames, we can imagine the association to have first prompted the devout King's design—in the words of the Charter, "to found, erect, and establish, to endure in all future time, a College consisting of and of the number of one provost and ten priests, four clerks and six chorister boys, who are to serve daily there in the celebration of divine worship, and of twenty-five poor and indigent scholars who are to learn grammar; and also of twenty-five poor and infirm men, whose duty it shall be to pray there continually for our health and welfare so long as we live, and for our soul when we shall have departed this life, and for the souls of the illustrious Prince, Henry our father, late King of England and France; also of the Lady Katherine of most noble memory, late his wife, our mother; and for the souls of all our ancestors and of all the faithful who are dead: (consisting) also of one master or teacher in grammar, whose duty it shall be to instruct in the rudiments of grammar the said indigent scholars and all others whatsoever who may come together from any part of our Kingdom of England to the said College, gratuitously and without the exaction of money or any other thing."

The works were commenced in 1441, with the chapel of the College; and to expedite the building, workmen were "pressed" from every part of the realm. The freemasons received 3s. a week each, the stonemasons and carpenters 3s.; plumbers, sawyers, tilers, &c., 6d. a day, and common laborers 4d. The grant of arms expresses this right royal sentiment: "If men are ennobled on account of ancient hereditary wealth, much more is he to be preferred and styled truly noble, who is rich in the treasures of the sciences and wisdom, and is also found diligent in his duty towards God." Henry appointed Waynflete first provost, who, with five fellows of Winchester, and thirty-five of the scholars of that College, became the primitive body of Etonians, in 1443. The works of the chapel were not completed for many years; and the other parts of the College were unfinished until the commencement of Henry the Eighth's reign.

Eton, in its founder's time, was resorted to as a place of education by the

youth of the higher orders, as well as by the class for whose immediate advantage the benefits of the foundation were primarily designed. Those students not on the foundation were lodged at their relations' expense in the town (*oppidum*) of Eton, and thence called *Oppidans*. The scholars on the foundation (since called Collegers) were lodged and boarded in the College-buildings, and at the College expense. There are two quadrangles, built chiefly of red brick: in one are the school and the chapel, with the lodgings for the scholars; the other contains the library, the provost's house, and apartments for the Fellows. The chapel is a stately stone structure, and externally very handsome. The architecture is Late Perpendicular, and a good specimen of the style of Henry the Seventh's reign. In the centre of the first quadrangle is a bronze statue of Henry VI.; and in the chapel another statue, of marble, by John Bacon. The foundation scholars seem to have been first placed in two large chambers on the ground-floor, three of the upper boys in each; they had authority over the others, and were responsible for good conduct being maintained in the dormitory. Subsequently was added "the Long Chamber" as the common dormitory of all the scholars. Dinner and supper were provided daily for all the members of the College; and every scholar received yearly a stated quantity of coarse cloth, probably first made up into clothing, but it has long ceased to be so used.

The King's Scholars or Collegers are distinguished from oppidans by a black cloth gown. The boys dined at eleven, and supped at seven; there being only two usual meals.

King Henry is recorded to have expressed much anxiety for his young incipient Alumni. One of his chaplains relates that "when King Henry met some of the students in Windsor Castle, whither they sometimes used to go to visit the King's servants, whom they knew, on ascertaining who they were, he admonished them to follow the path of virtue, and besides his words would give them money to win over their good-will, saying, 'Be good boys; be gentle and docile, and servants of the Lord.' (*Sitis boni pueri, mites et docibiles, et servi Domini.*)"

The progress of the buildings was greatly checked by the troubles towards the close of the reign of Henry VI.; and his successor, Edward IV., not only deprived Eton of large portions of its endowments, but obtained a bull from Pope Pius II. for disposing of the College, and merging it in the College of St. George at Windsor; but Provost Westbury publicly and solemnly protested against this injustice, the bull was revoked, and many of the endowments were restored, though the College suffered severely. The number on the foundation consisted of a provost and a vice-provost, 6 fellows, 2 chaplains, 10 choristers, the upper and lower master, and the 70 scholars. The buildings were continued during the reign of Henry VII., and the early years of Henry the Eighth, whose death saved Parliament from extinguishing Eton, which was then confirmed to Edward VI.

"Among the Paston Letters is one written in 1467, by 'Master William Paston at Eton, to his Worshipful Brother, John Paston, acknowledging the receipt of 8*s.* in a letter, to buy a pair of slippers; 18*s.* 4*d.* to pay for his board, and thanking him for 12*lb.* of Figs and 8*lb.* of Raisins, which he was expecting by the first barge: he then narrates how he had fallen in love with a young gentlewoman to whom he had been introduced by his hostess, or dame; and he concludes with a specimen of his skill in Latin versification."

A MS. document in Corpus Christi College, Cambridge, shows the general system of the school, the discipline kept up, and the books read in the various forms, about the year 1560. The holidays and customs are also enumerated; great encouragement was then shown to Latin versification, (always the pride of Eton,) and occasionally to English, among the students; care was taken to teach the younger boys to write a good hand. The boys rose at five to the loud call of 'Surgite;' they repeated a prayer in alternate verses, as they dressed themselves, and then made their beds, and each swept the part of the chamber close to his bed. They then went in a row to wash, and then to the school, where the under-master read prayers at six; then the prepositor noted absences, and one examined the students' faces and hands, and reported any boys that came unwashed. At seven, the tuition began: great attention was paid to Latin composition in prose and verse, and the boys conversed in Latin. Friday seems to have been flogging day. Among the books read by the boys in the two highest forms are mentioned *Cæsar's Commentaries*, *Cicero De Officiis* and *De Amicitia*, *Virgil*, *Lucian*, and, what is remarkable, *the Greek Grammar*; a knowledge of Greek at this period being a rare accomplishment even at our universities. Its study was, however, gaining ground in Elizabeth's reign; and in a book published in 1586, it is stated that at Eton, Winchester, and Westminster, boys were then 'well entered in the knowledge of the Latin and Greek tongues and rules of versifying.' Throughout this MS. record is shown the antiquity of making the upper boys responsible for the good conduct of the lower, which has ever been the ruling principle at Eton—in the schools, at meal-times, in the chapel, in the playing-fields, and in the dormitory; and there was a prepositor to look after dirty and slovenly boys.

Of scholars' expenses at Eton early in the reign of Elizabeth, we find a record in the accounts of the sons of Sir William Cavendish, of Chatsworth. Among the items, a breast of mutton is charged tenpence; a small chicken, fourpence; a week's board five shillings each, besides the wood burned in their chamber; to an old woman for sweeping and cleaning the chamber, twopence; mending a shoe, one penny; three candles, ninepence; a book, *Æsop's Fables*, fourpence; two pair of shoes, sixteenpence; two bunches of wax-lights, one penny; the sum total of the payments, including board paid to the bursars of Eton College, living expenses for the two boys and their man, clothes, books, washing, &c., amount to 12*l.* 12*s.* 7*d.* The expense of a scholar at the University in 1514 was but five pounds annually, affording as much accommodation as would now cost sixty pounds, though the accommodation would be far short of that now customary. At Eton, in 1557, the number of scholars exceeded 700.

The College buildings have been from time to time re-edified and enlarged. The Library, besides a curious and valuable collection of books, is rich in Oriental and Egyptian manuscripts, and beautifully illustrated miscels. The Upper School Room in the principal court, with its stone arcade beneath, and the apartments attached to it, were built by Sir Christopher Wren, at the expense of Dr. Allstree, provost in the reign of Charles II. We have engraved this school-room from an original sketch; it is adorned with a series of busts of eminent Etonians.

The College Hall interior has been almost entirely rebuilt through the munificence of the Rev. John Wilder, one of the Fellows, and was re-opened in October, 1857; these improvements include a new open-timber roof, a louvre, win-

dows east and west, a gothic oak canopy, and a carved oak gallery over the space dividing the hall from the buttery. The oak panelling around the room is cut all over with the names of Etonians of several generations.

Among the Eton festivals was, the *Montem*, formerly celebrated every third year on Whit-Tuesday, and believed to have been a corruption of the Popish ceremony of the Boy Bishop. It consisted of a theatrical procession of pupils wearing costumes of various periods, for the purpose of collecting money, or "salt," for the captain of Eton, about to retire to King's College, Cambridge. To each contributor was given a small portion of salt, at an eminence named therefrom Salt-Hill; the ceremony concluding with the waving of a flag upon this hill or *Montem*.<sup>\*</sup> Boating and cricket are the leading recreations at Eton: the College walks, or playing-fields, extended to the banks of the Thames, and the whole scene is celebrated by Gray, the accomplished Etonian, in his well-known *Ode on a Distant Prospect of Eton College*, commencing—

"Ye distant spires, ye antique towers  
That crown the watery glade."

"Waynflete was the first Provost of Eton. Among the eminent scholars are Archbishop Rotherham, and Bishop West; Croke, the celebrated Hellenist, one of the first who taught the Greek language publicly in any university north of the Alps; Bishop Aldrich, the friend of Erasmus; Hall, the chronicler; Bishop Foxe; Thomas Sutton, founder of the Charterhouse; Sir Thomas Smith, and Sir Henry Savile, provosts; Admiral Sir Humphrey Gilbert; Oughtred, the mathematician; Tusser, the useful old rhymist; Phineas and Giles Fletcher, the poets; the martyrs, Fuller, Glover, Saunders, and Hullier; Sir Henry Wotton, provost; Robert Devereux, third Earl of Essex; Waller, the poet; Robert Boyle; Henry More, the Platonist; Bishops Pearson and Sherlock; the ever-memorable John Hales, 'the Walking Library'; Bishops Barrow and Fleetwood; Lord Camden; the poets Gray, Broome, and West; Fielding, the novelist; Dr. Arne, the musical composer; Horace Walpole; the Marquis of Granby; Sir William Draper; Sir Joseph Banks; Marquis Cornwallis; Lord Howe; Richard Porson, the Greek Emperor; the poets Shelley, Præd and Milman; Hallam, the historian; and W. E. Gladstone, the statesman.

The Premiers of England, during the last century and a half, were mostly educated at Eton. Thus, Lord Bolingbroke, Sir William Wyndham, Sir Robert Walpole, Lord Townshend, Lord Lyttleton, Lord Chatham, the elder Fox, Lord North, Charles James Fox, Mr. Wyndham, the Marquis Wellesley, Lord Grenville, Canning, the Duke of Wellington, Lord Grey, and the Earl of Derby—were all Etonians.

Among the celebrities of the College should not be forgotten the periodical work entitled *The Etonian*, the contributors to which were Eton scholars, and the author-publisher was the Etonian Charles Knight—a name long to be remembered in the commonwealth of English literature."

*King's College*, which Henry founded in 1441, at Cambridge, to be recruited from Eton, is the richest endowed collegiate foundation in that University.

<sup>\*</sup> The last *Montem* was celebrated at Whitsuntide, 1844. The abolition of the custom had long been pressed upon the College authorities, and they at length yielded to the growing condemnation of the ceremony as an exhibition unworthy of the present enlightened age. A memorial of the last celebration is preserved in that picturesque chronicle of events, the *Illustrated London News*, June 1, 1844.



WINCHESTER COLLEGE SCHOOL.

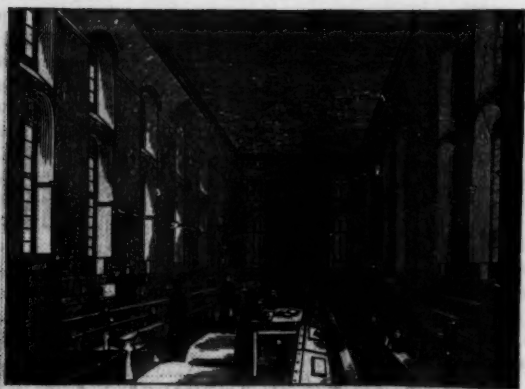


ETON SCHOOL.—The Upper School.





SAINT PAUL'S SCHOOL, London.



CHRIST'S HOSPITAL, London.—The Writing School.

## DEAN COLET AND SAINT PAUL'S SCHOOL.

**JOHN COLET, D. D.**, Dean of the Cathedral Church of St. Paul in London, was born in that city in 1466, the eldest son of Sir John Colet, twice mayor. In 1483, he was sent to Magdalen College, Oxford, where he passed seven years, and took the usual degrees in arts. Here he studied Latin, with some of the Greek authors through a Latin medium, and mathematics. Having thus laid a good foundation for learning at home, he traveled in France and Italy from 1493 to 1497; he had previously been preferred to the rectory of Dennington, in Suffolk, being then in acolyth's orders. At Paris, Colet became acquainted with the scholar Budæus, and was afterwards introduced to Erasmus. In Italy he contracted a friendship with Grocyn, Linacre, Lilly, and Latimer, all of whom were studying the Greek language, then but little known in England. Whilst abroad, he devoted himself to divinity, and the study of the civil and canon law. Colet returned to England in 1497, and subsequently rose through various degrees of preferment to be Dean of St. Paul's. By his lectures, and other means, he greatly assisted the spirit of inquiry into the Holy Scriptures which eventually produced the Reformation. He had, however, many difficulties to contend with; and tired with trouble and persecution, he withdrew from the world, resolving, in the midst of life and health, to consecrate his fortune to some lasting benefaction, which he performed in the foundation of St. Paul's School, at the east end of St. Paul's churchyard, in 1512; and, "it is hard to say whether he left better lands for the maintenance of his school, or wiser laws for the government thereof."—(*According to Fuller*).

The original school-house, built 1508-12, was destroyed in the Great Fire of 1666, but was rebuilt by Wren. This second school was taken down in 1824, and the present school built of stone from the designs of George Smith: it has a handsome central portico upon a rusticated base, projecting over the street pavement. The original endowment, and for several years the only endowment of the school, was 55*l.* 14*s.* 10*d.*, the annual rents of estates in Buckinghamshire, which now produce 1858*l.* 16*s.* 10*d.* a-year; and, with other property, make the present income of the school upwards of 5000*l.* Lilly, the eminent grammarian, the friend of Erasmus and Sir Thomas More, was the first master of St. Paul's, and "Lilly's Grammar" is used to this day in the school; the English rudiments were written by Colet, the preface to the first edition probably by Cardinal Wolsey; the Latin syntax chiefly by Erasmus, and the remainder by Lilly: thus, the book may have been the joint production of four of the greatest scholars of the age. Colet directed that the children should not use tallow but wax candles in the school; fourpence entrance-money was to be given to the poor scholar who swept the school; and the masters were to have livery gowns, "delivered in clothe."

Colet died in his 53rd year, in 1519. He wrote several works in Latin; the grammar which he composed for his school was called "Paul's Accidence." The original Statutes of the school, signed by Dean Colet, were, many years since, accidentally picked up at a bookseller's, and by the finder presented to the British Museum. The school is for 133 boys "of every nation, country, and class:" the 133 alluding to the number of fishes taken by St. Peter (*John*, xxi. 2). The education is entirely classical; the presentations to the school are in the gift of the Master of the Mercers' Company; and scholars are admitted at fifteen, but eligible at any age after that. Their only expense is for books and

wax tapers. There are several valuable exhibitions, decided at the Apposition, held in the first three days of the fourth week after Easter, when a commemorative oration is delivered by the senior boy, and prizes are presented from the governors. In the time of the founder, the "Apposition dinner" was "an assembly and a litell dinner, ordayned by the surveyor, not exceedynge the pryce of four nobles."

In the list of eminent Paulines (as the scholars are called), are, Sir Anthony Denny and Sir William Paget, privy councillors to Henry VIII.; John Leland, the antiquary; John Milton, our great epic and poet; Samuel Pepys, the diarist; John Strype, the ecclesiastical historian; Dr. Calamy, the High Churchman; the Great Duke of Marlborough; R. W. Elliston, the comedian; Sir C. Mansfield Clarke, Bart.; Lord Chancellor Truro, &c.

#### EDWARD VI. AND CHRIST'S HOSPITAL.

THE most munificent patron of education who ever sat upon the British throne was Edward VI., the only son of Henry VIII. who survived him. He was born at Hampton Court in 1537, on the 12th of October, which being the vigil of St. Edward, he received his Christian appellation in commemoration of the canonized king. His mother, Queen Jane Seymour, died on the 12th day after giving him birth. The child had three step-mothers in succession after this; but he was probably not much an object of attention with either of them. Sir John Hayward, who has written the history of his life and reign with great fullness, says that he "was brought up among nurses until he arrived at the age of six years. He was then committed to the care of Dr. (afterwards Sir Anthony) Cook, and Mr. (afterwards Sir John) Cheke, the former of whom appears to have undertaken the prince's instruction in philosophy and divinity, the latter in Greek and Latin." He succeeded to the throne when little more than nine years of age. The conduct of the young prince towards his instructors was uniformly courteous; and his generous disposition won for him the highest esteem. In common with the children of the rich and great, he was from his cradle surrounded with means of amusement. It is related that at the age of five years, a splendid present was made to him by his godfather, Archbishop Cranmer; the gift was a costly service of silver, consisting of dishes, plates, spoons, &c. The child was overjoyed with the present, when the prince's valet, seeking to impress on his mind its value, observed: "Your highness will be pleased to remember that although this beautiful present is yours, it must be kept entirely to yourself; for if others are permitted to touch it, it will be entirely spoiled." "My good Hinbrook," replied the prince, mildly, "if no one can touch these valuables without spoiling them, how do you then suppose they would ever have been given to me?" Next day, Edward invited a party of young friends to a feast, which was served upon the present of plate; and upon the departure of the young guests, he gave to each of them an article of the service, as a mark of regard.

Cranmer, to encourage Edward in his studies, was in the habit of corresponding with him once a week, and requiring of him an account of what he had done during that time. The prince also complied with the request of his venerable godfather, by keeping a journal, for which purpose he divided a sheet of paper into five columns, and under that arrangement recorded his progress in mythology, history, geography, mathematics, and philosophy.

At the age of fifteen, Edward is said to have possessed a critical knowledge of the Greek and Latin languages; and to have conversed fluently in French, Spanish, and Italian. A manuscript is still preserved in the British Museum, containing a collection of his exercises in Greek and Latin; several of his letters, in French and Latin, written with singular accuracy of diction, are also extant; and when to his other accomplishments it is added that he was well versed in natural philosophy, astronomy, and logic, his acquirements will be allowed to have been extraordinary. "This child," says Carden, the celebrated physician, who had frequently conversed with Edward, "was so bred, had such parts, was of such expectation, that he looked like a miracle of a man; and in him was such an attempt of Nature, that not only England, but the world, had reason to lament his being so early snatched away."

Few events in the history of Christian benevolence are so minutely recorded as the foundation of Christ's Hospital. At the same time, Edward founded St. Thomas's and Bridewell Hospitals; the three foundations forming part of a comprehensive scheme of charity, resulting from a sermon preached before the King by the pious Bishop Ridley, at Westminster, in 1552. The Bishop, discoursing on the excellence of charity, "made a fruitful and goodly exhortation to the rich to be merciful unto the poor, and also to move such as were in authority, to travail by some charitable ways and means, to comfort and relieve them." Edward's heart was touched by the earnestness of the appeal, and "understanding that a great number of poor people did swarm in this realm, and chiefly in the city of London, and that no good order was taken of them," he sent the Bishop a message when the sermon was ended, desiring him not to depart till he had spoken with him. As soon as he was at leisure, he took him aside into a private gallery, where he made him sit down, and be covered; and giving him hearty thanks for his sermon, entered into conversation on several points, which, according to his usual practice, he had noted down for special consideration. Of this interview, the venerable Ridley remarked: "Truly, truly, I could never have thought that excellency to have been in his grace, but that I beheld and heard it in him."

Adverting, at length, to the Bishop's exhortation in behalf of the poor, Edward greatly commended it, and it had evidently made a powerful impression upon his mind. He then acknowledged the application of Ridley's exhortation to himself, and prayed the Bishop to say his mind as to what ways were best to be taken. Ridley hesitated for a moment to reply. At length, he observed that the city of London, as well on account of the extreme poverty which prevailed there on the one hand, and of the wise and charitable disposition of its more wealthy inhabitants on the other, would afford a favorable opening for the exercise of the royal bounty; and advised that letters should be forthwith directed to the Lord Mayor, requiring him, with such assistants as he might think meet, to consult upon the matter. Edward wrote the letter upon the instant, and charged Ridley to deliver it himself; and his delight was manifested in the zeal with which he undertook the commission, for the King's letter and message were delivered on the same evening. On the following day Ridley dined with the Lord Mayor, who, with two Aldermen and six Commoners, took the King's proposal into consideration; other councillors were added, and at length the plan recommended to his Majesty was to provide Christ's Hospital for the education of poor children; St. Thomas's, for the relief of the sick and

dismissed; and Bridewell, for the correction and amendment of the idle and the vagabond.

For Christ's Hospital was granted the monastery of the Grey Friars; the King also presenting the foundation with a considerable stock of linen; which the commissioners, who had lately been appointed to inspect the churches in and about the metropolis, had deemed superfluous for the performance of divine service, as celebrated since the Reformation. For the second hospital, an almshouse was fitted up; and for the third hospital, Edward granted his royal palace of Bridewell. He then bestowed certain lands for the support of these foundations; and having signed the instrument, ejaculated in the hearing of his Council—"Lord, I yield thee most hearty thanks, that thou hast given me life this long, to finish this work to the glory of thy name."

"A large picture, (attributed to Holbein,) which hangs in the Great Hall of Christ's Hospital, portrays this interesting scene. The young monarch sits on an elevated throne, in a scarlet and ermined robe, holding the sceptre in his left hand, and presenting with the other the Charter to the kneeling Lord Mayor. By his side stands the Chancellor holding the seals, and next to him are other officers of State. Bishop Ridley kneels before him with uplifted hands, as if supplicating a blessing on the event; whilst the Aldermen, &c., with the Lord Mayor, kneel on both sides, occupying the middle ground of the picture; and lastly, in front, are a double row of boys on one side, and girls on the other, from the master and matron down to the boy and girl who have stepped forward from their respective rows, and kneel with raised hands before the King."

Edward lived about a month after signing the Charter of Incorporation of the Royal Hospitals: in the spring of 1552 he had been seized with the small-pox, when he had scarcely recovered from the measles; a consumptive cough came on; his medical advisers were dismissed, and his cure entrusted to the ignorant empiricisms of an old nurse; this disorder was greatly aggravated, and he died in the arms of Sir Henry Sidney, on the 6th July, 1553, in the sixteenth year of his age, praying God to receive his spirit, and to defend the realm from popery.

The Old Grey Friars buildings adjoining Newgate-street were now repaired by aid of the citizens' benefactions, and in November, 1552, there were admitted 340 "poore fatherlesse children" within the ancient monastery walls. "On Christmas-day," says Stow, "while the Lord Maior and Aldermen rode to Paul's, the children of Christ's Hospitall stood from St. Lawrence-lane end in Cheape towards Paul's, all in one livery of russet cotton, 340 in number; and at Easter next they were in blue, at the Spittle, and so have continued ever since." Hence the popular name of the Hospital, "the Blue-Coat School."

Since this period, the income of the institution has known much fluctuation; and consequently, the number of inmates. The 340 children with which the Hospital opened had dwindled in 1580 to 150. The object of the institution has also, in the lapse of time, become materially changed, which may in a great measure be attributed to the influence of the Governors, or benefactors, its chief supporters.

The Hospital, with the church of the monastery, was destroyed by the Great Fire, but was soon rebuilt. Later was added the Mathematical School, founded by Charles II., in 1672, for 40 boys, to be instructed in navigation; they are

called "King's Boys," and wear a badge on the right shoulder; and there was subsequently added, by the legacy of a Governor, a subordinate Mathematical School of 12 boys ("The Twelves"), who wear a badge on the left shoulder; and lastly, to these have been added "The Twos."

This was the first considerable extension of the system of education at the Hospital, which originally consisted of a grammar-school for boys, and a separate school for girls, the latter being taught to read, sew, and mark. A book is preserved containing the records of the Hospital from its foundation, and the anthem sung by the first children.

Of the school buildings, we engrave the interior of the Writing School, a large edifice built by Sir Christopher Wren, in 1694, at the expense of Sir John Moore, of whom a marble statue is placed in the façade. Of the ancient Friary-ports of the cloisters only remain. The great Dining Hall was commenced in 1825, and is built partly on the ancient wall of London, and partly on the foundation of the refectory of the monastery. It is a vast edifice in the Tudor style, by Shaw, the principal front facing Newgate-street, with the enclosed play-ground; the Hall, with its lobby and organ gallery, is 178 feet long: it is lit by nine large windows, and is, next to Westminster Hall, the noblest room in the metropolis. Here besides the large Charter picture, already described, is a painting by Verrio, of James II. on his throne, receiving "the Mathematical Boys," in the same form as at their annual presentation to this day; though in Verrio's picture are girls as well as boys.

"In this Hall are held the "Suppings in Public," on the seven Sunday evenings preceding Easter Sunday, and on that evening, to which visitors are admitted by tickets. The tables are laid with cheese in wooden bowls; beer in wooden piggins, poured from leathern jacks; and bread brought in huge baskets. The official company then enter, the Lord Mayor or President taking his seat in a chair made of oak from old St. Katherine's Church; a hymn is sung, accompanied by the organ; a Grecian reads the evening service from the pulpit, silence being enforced by three strokes of a hammer. After prayers, the meal commences, the visitors walking between the tables. At its close, the "trade boys" take up the piggins and jacks, baskets, bowls, and candlesticks, and pass in procession before the authorities, bowing to them; the entire 800 boys thus passing out.

"The Spital (or Hospital) Sermons are preached in Christchurch, Newgate-street, on Easter Monday and Tuesday. On Monday, the children proceed to the Mansion House, and return in procession to Christchurch with the Lord Mayor and City authorities, to hear the sermon. On Tuesday, the children again go to the Mansion House, and pass through the Egyptian Hall before the Lord Mayor, each boy receiving a glass of wine, two buns, and a shilling; the monitors half-a-crown each, and the Grecians a guinea. They then return to Christchurch, as on Monday."

At the first Drawing-room of the year, forty "Mathematical Boys" are presented to the Sovereign, who gives them 8*l.* 8*s.* as a gratuity. To this, other members of the Royal Family formerly added smaller sums, and the whole was divided among the ten boys who left the school in the year. On the illness of King George III. these presentations were discontinued; but the Governors of the Hospital continued to pay 1*l.* 3*s.*, the amount ordinarily received by each,



to every boy on quitting. The practice of receiving the children was revived by William IV.

Each of the "Mathematical Boys" having passed his Trinity-House examination and received testimonials of his good conduct, is presented with a watch, worth from 9*l.* to 13*l.*, in addition to an outfit of clothes, books, mathematical instruments, a Gunter's scale, a quadrant, and sea-chest. On St. Matthew's Day, (Sept. 21,) "the Grecians" deliver orations, this being a relic of the scholars' disputations in the cloisters.

The dress of the Blue-Coat Boys is the costume of the citizens of London at the time of the foundation of the Hospital, when blue coats were the common habit of the apprentices and serving-men, and yellow stockings were generally worn. This dress is the nearest approach to the monkish costume now worn; the dark-blue coat with a closely-fitting body and loose sleeves, being the ancient tunic, and the under-coat or "yellow," the sleeveless under-tunic of the monastery. The red leathern girdle corresponds to the hempen cord of the friar. Yellow worsted stockings, a flat black woolen cap, (scarcely larger than a saucer,) and a clerical neckband, complete the dress.

"The education of the boys consists of reading, writing, and arithmetic, French, the classics, and the mathematics. There are sixteen Exhibitions for scholars at the Universities of Oxford and Cambridge, &c. There are also separate trusts held by the Governors of the Hospital, which are distributed to poor widows, to the blind, and in apprenticing boys, &c. The annual income of the Hospital is about 50,000*l.*; its ordinary disbursements 48,000*l.*"

Among the eminent *Blues* are Leigh Hunt; Thomas Barnes, many years editor of the *Times* newspaper; Thomas Mitchell, the translator of Aristophanes; S. T. Coleridge, the poet, and Charles Lamb, his contemporary; Middleton, Bishop of Calcutta; Jeremiah Markland, the best scholar and critic of the last century; Samuel Richardson, the novelist; Joshua Barnes, the scholiast; Bishop Stillingfleet; Camden, "the nourrice of antiquitie;" and Campion, the learned Jesuit of the age of Elizabeth. Coleridge, Charles Lamb, and Leigh Hunt have published many interesting reminiscences of their contemporaries in the school.

"The subordinate establishment is at Hertford, to which the younger boys are sent preparatory to their entering on the foundation in London. At Hertford there is likewise accommodation for 80 girls.

"Besides the Lord Mayor, Court of Aldermen, and twelve members of the Common Council, who are Governors *ex officio*, there are between 400 and 500 other Governors, at the head of whom are the Queen and Prince Albert, with the Prince of Wales and Prince Alfred. The Duke of Cambridge is President. The qualification for Governor is a donation of 500*l.*; an Alderman may nominate a Governor for election at half-price. There are from 1400 to 1500 children on the foundation, including those at the branch establishment at Hertford. About 200 boys are admitted annually, (at the age of from seven to ten years,) by presentations of the Governors; the Queen, the Lord Mayor (two presentations,) and the Court of Aldermen, presenting annually, and the other Governors in rotation, so that the privilege occurs about once in three or four years. A list of the Governors having presentations is published annually in March, and is to be had at the counting-house of the Hospital. 'Grecians' and 'King's Boys,' remain in the school after they are fifteen years old; but the other boys leave at that age."

## WESTMINSTER SCHOOL.

It is one of the unfading glories of ancient Westminster that it has been a seat of learning since the time when it was a "thorny island," and at least eight centuries since was rebuilt the Abbey Church "to the honour of God and St. Peter." The queen of the Confessor is related to have played with a Westminster scholar in grammar, verses, and logic, as she met him in his way from the monastery school to the palace, as related by the chronicler with all the circumstantial minuteness of the account of a royal visit of yesterday. Equally direct is the evidence that from the latter part of the reign of Edward III., down to the dissolution of the Abbey, a salary was paid to a schoolmaster, styled "*Magister Scholarium pro eruditione puerorum grammaticorum*," who was distinguished from the person who taught the children of the choir to sing.

The earliest school was thus an appurtenance of the monastery; and is included in the draft (in the archives of the Chapter,) of the new establishment for the See of Westminster.

During the reign of Queen Mary, Cardinal Pole appears to have suffered the school to languish wholly unsupported. Her successor enforced the right of election to studentships, restored the revenues, and the foundation of an Upper and Lower Master and forty scholars, and gave the present statutes, whence Elizabeth has received the honorable title of Foundress. This Queen added an important statute to regulate the mode of election of novitiates into St. Peter's College. Evelyn has recorded one of these examinations:—

"In 1661, May 13, I heard and saw such exercises at the election of scholars at Westminster School to be sent to the University, in Latin, Greek, Hebrew, and Arabic, in themes and extemporary verses, with such readiness and will as wonderfully astonished me in such youths."

Dean Goodman was the next benefactor, in obtaining a perpetual grant of his prebend of Chiswick, to be a place of refuge for the members of the Chapter and College whenever pestilence might be desolating Westminster. During this Deanship, the scholars were lodged in one spacious chamber, their commons were regulated, and the apartments of the Masters received an increase of comfort and accommodation. Among the earliest grants is a perpetual annuity of twenty marks, made in 1594, by Cecil, Lord High Treasurer, to be presented as gifts to scholars elected to either of the Universities.

Before the middle of the reign of Elizabeth, the rudiments of the Greek language were taught to boys at Westminster School; and Harrison, in his preface to Hollinshed, about 1586, states that the boys of the three great collegiate schools (Winchester, Eton, and Westminster,) were "well entered in the knowledge of the Latin and Greek tongues and rules of versifying."

Dean Goodman had for his successor that man of prayer and "most rare preacher," Dr. Launcelot Andrewes, who would often supply the place of the Masters for a week together. It was one of his simple pleasures, "with a sweetness and compliance with the recreations of youth," always to be attended, in his little retirements to the cheerful village of Chiswick, by two of his scholars; and often thrice in the week, it is said, he assembled about him in his study those of the Upper Form; and the earnest little circle frequently through the whole evening, with reverential attention heard his exposition of the Sacred Text; while he also pointed out to them those sources of knowledge in Greek

and Latin, from which he had gathered his own stores of varied learning.—Walcott's *Memorials of Westminster*.

Once more evil days fell upon the rising school. The Abbey was desecrated, and the families of the scholars were threatened or assailed by the horrors of the Great Rebellion, when Parliament, having for about four years exercised power over the School through a Committee, in 1649 assumed a protectorate, entrusting the management of the School to a government of fifty members established in the Deanery. The fee or inheritance of many of the Abbey estates was sold; old rents only being reserved to the College. This control lasted until the Restoration in 1660; since which period the scholars have been maintained by the common revenues of the Collegiate Church, at a cost of about 1200*l.* a year.

The Queen's Scholars wear caps and gowns; and there are four "Bishop's Boys" educated free, who wear purple gowns, and have 60*l.* annually amongst them. Besides this *foundation*, a great number of sons of the nobility and gentry are educated here. Of the Queen's Scholars an examination takes place in Rogation week, when four are elected to Trinity College, Cambridge, and four to Christchurch, Oxford; scholarships of about 60*l.* a year.

The scholars from the fourth, fifth, and Shell Forms "stand out" in Latin, Greek, and grammatical questionings, on the Wednesday before Ascension Day, in the presence of the Head Master, who presides as umpire, when the successful competitors being chosen to fill the vacancies, "the Captain of the Election" is chaired round Dean's Yard, or the school court. On Rogation Tuesday, a dinner is given to the electors, and all persons connected with the School, by the Dean and Chapter; and any old Westminster scholar of sufficient rank or standing is entitled to attend it. After dinner, epigrams are spoken by a large proportion of the Queen's Scholars. There are several funds available to needy scholars; and the whole foundation and school is managed by the Dean and Chapter of Westminster.

The school buildings are in part ancient. You enter the School court from the Broad Sanctuary, through an archway in a block of houses of mediæval architecture. The porch of the School is stated to have been designed by Inigo Jones. On the north front is the racket-court, formed against part of the west wall of the dormitory. The venerable School itself, once the dormitory of the monks, ranges behind the eastern cloister of the Abbey. It is a long and spacious building, with a semicircular recess at one end, the Head Master's table standing in front of it; four tiers of forms, one above the other, are ranged along the eastern and western walls; and the room has a massive open-timber roof of chestnut. The Upper and Lower Schools are divided by a bar, which formerly bore a curtain: over this bar on Shrove Tuesday, at eleven o'clock, the College cook, attended by a vergar, having made his obeisance to the Masters, proceeds to toss a pancake into the Upper School, once a warning to proceed to dinner in the Hall.\*

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\* An interesting tradition is attached to the bar at the time it bore a curtain. Two boys at play, by chance made a grievous rent in the pendent drapery; and one of the delinquents suffered his generous companion to bear the penalty of the offence—a severe flogging. Long years went by; the Civil War had parted chief friends; and the boys had grown up to manhood, unknown to each other. One of them, now become a Judge and sturdy Republican, was presiding at the trial of some captive cavaliers, and was ready to upbraid and sentence them, when he recognized in the

The School is fraught with pious memories. Here "that sweet singer of the Temple, George Herbert," was reared; and that love of choral music, which "was his heaven upon earth," was, no doubt, implanted here, while he went up to pray in the glorious Abbey. And it was here that South, in his loyal childhood, reader of the Latin prayers for the morning, publicly prayed for Charles I. by name, "but an hour or two at most before his sacred head was struck off." Nor can we forget among the ushers, the melody of whose Latin poems had led him to be called "Sweet Vinny Bourne;" or the mastership of Busby, who boasted his rod to be the sieve to prove good scholars, and walked with covered head before Charles II.; then humbly at the gate assured his Majesty that it was necessary for his dignity before his boys to be the greatest man there, even though a king were present. How successfully, too, is Busby commemorated in the whole-length portrait of the great school-master standing beside his favorite pupil, Spratt. Upon the walls are inscribed many great names; and in the library is preserved part of the form on which Dryden once sat, and on which his autograph is cut.

In the *Census Alumnorum*, or list of *foundation* scholars, are Bishops Overall and Ravis, translators of the Bible; Hakluyt, collector of Voyages; Gunter, inventor of the Scale; "Master George Herbert;" the poets Cowley and Dryden; South; Locke; Bishops Atterbury, Spratt, and Pearce; the poet Prior, and Stepney the statesman; Rowe and "Sweet Vinny Bourne," the poets; Churchill, the satirist; Warren Hastings; Everard Home, surgeon; Dr. Drury, of Harrow School, &c. Among the other eminent persons educated here are Lord Burleigh; Ben Jonson; Nat Lee; Sir Christopher Wren; Jasper Mayne, the poet; Barton Booth, the actor; Blackmore, Browne, Dyer, Hammond, Aaron Hill, Cowper, and Southey, the poets; Horne Tooke; Gibbon, the historian; Cumberland, the dramatist; Colman the Younger; Sir Francis Burdett; Harcourt, Archbishop of York; the Marquis of Lansdowne; Lord John Russell; the Marquis of Anglesey; Sir John Cam Hobhouse (Lord Broughton); George Bidder, of calculating fame, now the eminent civil engineer.

Among the eminent Masters are Camden, "the Pausanias of England," who had Ben Jonson for a scholar; and Dr. Busby, who had Dryden, and who, out of the bench of bishops, taught sixteen.

The College Hall, originally the Abbot's refectory, was built by Abbot Littleton, *temp.* Edward III.: the floor is paved with chequered Turkish marble; at the south end is a musician's gallery, now used as a pantry, and behind are butteries and hatches; at the north side, upon a dais, is the high table; those below, of chestnut-wood, are said to have been formed out of the wreck of the Armada. The roof-timbers spring from carved corbels, with angels bearing shields of the Confessor's and Abbot's arms; and a small louvre rises above the central hearth, upon which in winter a wood and charcoal fire used to burn until the year 1850.\* The Library is a modern Italian room, and contains several

worn features of one grey-haired veteran, the well-remembered look of the gallant boy who had once borne punishment for him. By certain answers, which in the examination he elicited, his suspicions were confirmed; and with an immediate resolve, he posted to London, where, by his influence with Oliver Cromwell, he succeeded in preserving his early friend from the scaffold.—Walcott's *Memoirs of Westminster*.

\* Fires continued to be made on a hearth in the middle of the hall called the *raydos*, in many college halls in Oxford and Cambridge, until about the year 1820.

memorials of the attachment of "Westminsters." The old dormitory, built in 1380, was the granary of the monastery; and was replaced by the present dormitory in 1723, from the designs of the Earl of Burlington: its walls are thickly inscribed with names. Here Latin plays are represented upon the second Thursday in December, and the Monday before and after that day. These performances superseded the old Mysteries and Moralities in the reign of Queen Mary, when the boy actors were chiefly the acolytes, who served at mass. Warton mentions that this "liberal exercise is yet preserved, and in the spirit of true classical purity, at the College of Westminster." Garrick designed scenery for these pieces; but the modern dresses formerly used were not exchanged for Greek costume until 1839. The plays acted of late years have been the *Andria*, *Phormio*, *Emmochus*, and *Adelphi*, of Terence, with Latin prologue and epilogue pleasantly reflecting in their humor events of the day. Two new scenes were drawn for the theatre, in 1857, by Professor Cookorell, R. A.

Boating is a favorite recreation of the Westminsters, who have often contested the championship of the Thames with Eton. On May 4, 1837, the Westminsters won a match at Eton; when, by desire of William IV., the victors visited Windsor Castle, and were there received by the good-natured king.

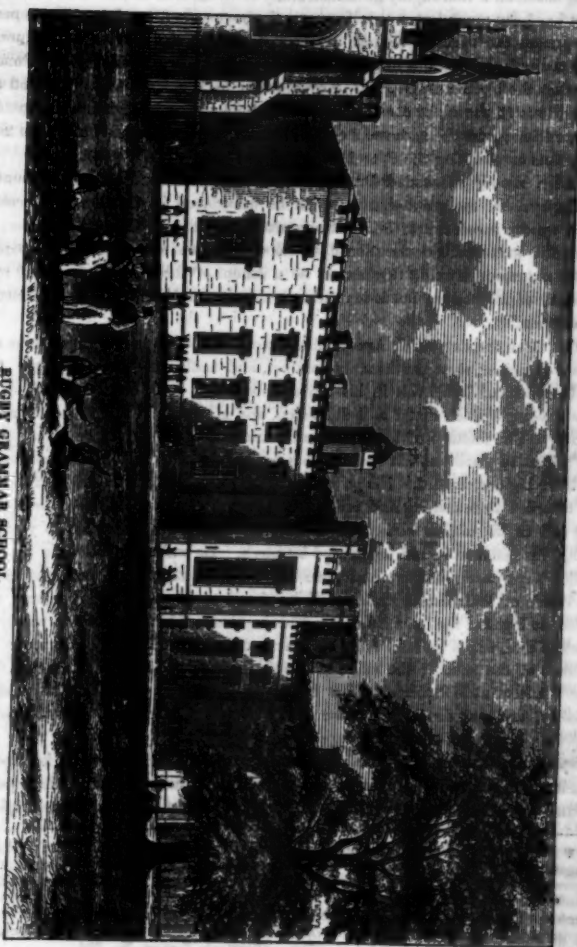
#### RUGBY SCHOOL.

Rugby Grammar School was founded by Lawrence Sheriff, a native of Rugby, who had accumulated a large fortune in dealing with the fruits and spices of the West Indies. He was warden of the Grocers' Company in 1566; and in Fox's Book of Martyrs he is spoken of as "servant to the Lady Elizabeth, and sworn unto her Grace," which seems to imply that he was "grocer to the Queen;" he kept shop "near to Newgate Market." Sheriff died in 1587, and by his last will, made seven weeks previously, bequeathed a third of his Middlesex estate to the foundation of "a fair and convenient schoolhouse, and to the maintaining of an honest, discreet, and learned man to teach grammar;" the rents of that third, which then amounted to 3*l.* annually, had swelled in 1835 to above 5500*l.*

Immediately upon the founder's death, the school was commenced in a building in the rear of the house assigned for the master; it consisted of one large room, having no playground attached. The first page of the school register, commencing in 1675, shows that of the 26 entrances in that year, 12 were boys not upon the foundation, and one of them came even from Cumberland. The school now took a higher stamp; and early in the list we find the Earls of Stamford and Peterborough, the Lords Craven, Griffin, Stawell, and Ward, the younger sons of the houses of Cecil and Greville, and many of the baronets of the adjacent counties.

The school buildings were from time to time enlarged; until the improved value of the endowment enabled the trustees to commence, in 1809, the present structure, designed by Hakewill, in the Elizabethan style, and built nearly upon the same spot as the first humble dwelling. The buildings consist of cloisters on three sides of a court; the Great School, and the French and Writing Schools; the dining halls, and the chapel; and the master's house, where and in the town the boys are lodged. The group of buildings cost 35,000*l.*, but are of "poor sham Gothic." A library has since been added. The only former playground was the churchyard; but Rugby has now its bowling-green close, with its tall

ROBY GRAMMAR SCHOOL.





spiral elms; and its playground, where cricket and foot-ball are followed out-of-doors with no less zest and delight than literature is pursued within.\*

The instruction at Rugby retains the leading characteristics of the old school, being based on a thoroughly grounded study of Greek and Latin. But the treatment has been much improved: formerly the boys were ill-used, half imprisoned, and put on the smallest rations, a plentiful allowance of rod excepted; and a grim tower is pointed out in which a late pedagogue, Dr. Wooll, was accustomed to inflict the birch unsparingly. Nevertheless, in Wooll's time were added six exhibitions to the eight already instituted; books were first given as prizes for composition; and the successful candidates recited their poems before the trustees, thus establishing the Speeches.

To Dr. Wooll† succeeded Dr. Thomas Arnold, the second and moral founder of Rugby. Of the great change which he introduced in the face of education here, we can speak but in brief. Soon after he had entered upon his office, he made this memorable declaration upon the expulsion of some incorrigible pupils: "It is *not* necessary that this should be a school of three hundred, or one hundred, or of fifty boys; but it is necessary that it should be a school of Christian gentlemen."

The three ends at which Arnold aimed were—first, to inculcate religious and moral principle, then gentlemanly conduct, and lastly, intellectual ability. One of his principal holds was in his boy sermons, that is, in sermons to which the young congregation could and did listen, and of which he was the absolute inventor. The feelings of love, reverence, and confidence which he inspired, led his pupils to place implicit trust on his decision, and to esteem his approbation as their highest reward. His government of the school was no reign of terror: he resorted to reasoning and talking as his first step, which failing, he applied the rod as his *ultima ratio*, and this for misdemeanors inevitable to youth—lying, for instance,—and best cured by birch. He was not opposed to *fagging*, which boys accept as part and parcel of the institution of schools, and as the servitude of their feudal system; all he aimed to do was to regulate, and, as it were, to legalize the exercise of it. The keystone of his government was in the Sixth Form, which he held to be an intermediate power between the master and masses of the school; the value of which internal police he had learned from the Prefects at Winchester. But he carefully watched over this delegated authority, and put down any abuse of its power. The Prepositors themselves were no less benefited. "By appealing to their honor, by fostering their self-respect, and calling out their powers of governing their inferiors, he ripened their manhood, and they early learnt habits of command; and this system, found to work so well, is continued, and with many of its excellent principles, is

\* Foot-ball is the game, *par excellence*, of Rugby, as cricket is of Eton. The fascination of this gentle pastime is its mimic war, and it is waged with the individual prowess of the Homeric conflicts; and with the personal valor of the Orlando of mediæval chivalry, before villanous saltpetre had reduced the Knight-errant to the ranks. The play is played out by boys with that dogged determination to win, that endurance of pain, that bravery of combative spirit, by which the adult is tripped to face the cannon-ball with equal alacrity.—*Quarterly Review*, No. 204.

† Dr. Wooll was small in stature, but powerful in stripes; and under his head-mastership Lord Lyttleton suggested for the grim closet in which the rods are kept, the witty motto:—"Great Cry and Little Wooll."—See the *Book of Rugby School, its History and Daily Life*. 1866.

now acted on in most of the chief public schools of England." Dr. Arnold died in 1841, on the day preceding his forty-seventh birthday, having presided over the school for fourteen years: in the chapel at Rugby he rests from his labors, surrounded by those of his pupils who have been prematurely cut off. "Yet," touchingly says the Rugbeian writer in the *Quarterly Review*, "if they have known few of the pleasures of this world, they at least have not, like him, felt many of its sorrows, and death has not separated those who in life were united."

Dr. Arnold procured from the Crown a high mark of royal favor—her Majesty having founded an annual prize of a Gold Medal, to which several other prizes have been added. Dr. Arnold was succeeded in the head-mastership by the Rev. Dr. Tait, who retired on his appointment to the Deanery of Carlisle, in 1849; and who, in 1856, was preferred to the bishopric of London.

"In the list of eminent Rugbeians are the Rev. John Parkhurst, the Greek and Hebrew lexicographer; Sir Ralph Abercrombie, the hero of Alexandria; William Bray, F. S. A., the historian of Surrey; Dr. Legge, Bishop of Oxford; Sir Henry Hallford, Bart., President of the College of Physicians; Dr. Butler, editor of *Æschylus*, &c."

JOHN LYON AND HARROW SCHOOL.

At the village of Harrow-on-the-Hill, ten miles north-west of London,—where Lanfranc built a church, Thomas à Becket resided, and Wolsey was rector—in the reign of Elizabeth there lived a substantial yeoman named John Lyon. For many years previous to his death he had appropriated 20 marks annually to the instruction of poor children; and in 1571, he procured letters patent and a royal charter from the Queen, recognizing the foundation of a Free Grammar School, for the government of which, in 1593, he threw up the orders, statutes, and rules. The head-master is directed to be "on no account, below the degree of Master of Arts;" or the Usher "under that of a Bachelor of Arts." They are always to be "single men, unmarried." The stipends of the masters are settled; the forms specified; the books and exercises for each form marked out; the mode of correction described; the hours of attending school, the vacations and play-days appointed; and the scholars' amusements directed to be confined to "driving a top, tossing a hand-ball, running and shooting;" and for the last mentioned diversion all parents were required to furnish their children with "bow-strings, shafts, and bracers to exercise shooting." In addition to scholars to be educated freely, the schoolmaster is to receive the children of parishioners, as well as "foreigners;" from the latter "he may take such stipends and wages as he can get, except that they be of the kindred of John Lyon the founder." The sum of 20*l.* was allotted for four exhibitions—two in Gonville and Caius College, Cambridge; the others in any college at Oxford— which scholarships have been increased. The revenues of the School estates which Lyon left, are now very considerable; so that one portion of the property, which 70 years ago produced only 100*l.* a year, now returns 4000*l.*

The school was built about three years after Lyon's decease: "the school room,

\* John Lyon is buried in Harrow Church: the brass of his tomb states, "who hath founded a free grammar-school in this parish to have continuance for ever; and for maintenance thereof, and for releefe of the poore, and of some poore scholars in the universities, repairing of highwayes and other good and charitable uses, hath made conveyance of lands of good value to a corporation granted for that purpose. Prayse be to the Author of all goodness, who makes us myndful to follow his good example."

fifty feet in length, has large, square, heavy-framed windows, and is partly wainscoted with oak, which is covered with the carved names of many generations of Harrovians. The plastered walls above the wainscot were formerly filled with names and dates, but they have been obliterated with whitewash. Boards have since been put up on which the names are neatly carved, in regular order and of uniform size.

Among these inscriptions are the names of Parr; Sheridan, (only the initials R. B. S.); W. Jones, (Sir William); Bennett, (Bishop of Cloyne); Ryder, (Bishop of Lichfield and Coventry); Murray, (Bishop of Rochester); Dymock, (the Champion); Ryder, (Lord Harrowby); Temple, (Lord Palmerston); Lord Byron; and Peel, (Sir Robert); between the two last letters of the latter name is the name of Perceval, as cut by the lamented statesman.

Above the school room is the Monitors' Library. Here is a portrait of Dr. Parr; a portrait and bust of Lord Byron, and a sword worn by him when in Greece; and a superb fancy archery dress, worn on the day of shooting for the silver arrow, about the year 1766. Here, also, is a quarto volume of "Speech Bills." Near the School is the Speech Room, built by old Harrovians: the windows are filled with painted glass, and here is a painting of Cicero pleading against Catiline, painted by Gavin Hamilton. There is a Chapel for the accommodation of the scholars only; to which was added, in 1856, a "Memorial Chapel," in honor of those officers who fell in the Crimean war, who had been educated at Harrow School.\* The head-master's house is in the street of Harrow, and with the school buildings and chapel, is in the Elizabethan style. The device of the school is a lion, rampant, the armorial bearings of the founder, and a rebus of his name (motto, *Stet Fortuna Domus*), to which have been added two crossed arrows, denoting the ancient practice of archery enjoined by Lyon; and on the Anniversary, six or twelve boys shot for a silver arrow, the competitors wearing fancy dresses of spangled satin. The last arrow was contended for in 1771: the butts were set up on a picturesque spot, "worthy of a Roman amphitheatre," at the entrance to the village.

Beyond the court-yard are courts for racket, a favorite game at Harrow. There is likewise a cricket-ground, and a bathing-place, formerly known as "the Duck Puddle."

The scholars, chiefly the sons of noblemen and gentlemen, number about 400.

Among the eminent Harrovians are William Baxter, the antiquary and philologist; John Dennis, the poet and critic; Bruce, the traveller in Abyssinia; Sir William Jones, the Oriental scholar; the Rev. Dr. Parr; the heroic Lord Rodney; Richard Brinsley Sheridan; Viscount Palmerston; the Marquis Wellesley; Mr. Malthus, the political economist; Spencer Perceval; Earl Spencer, who collected the magnificent library at Althorp; the Earl of Aberdeen; W. B. Proctor, (Barry Cornwall,) the poet; Lord Elgin, who collected the "Marbles" from the Parthenon; Lord Chancellor Cottenham; the Earl of Shaftesbury; and Lord Byron and Sir Robert Peel, both born in the same year, 1788.

Over the tomb is a marble monument erected by Old Harrovians in 1813; the Latin inscription written by Dr. Parr; above, the sculptor, Flaxman, has represented a master and three pupils, said to be Dr. Butler, the then head-master, and the three Percevals, the sons of the Minister.

\* In the Chapel, the Church, and the School, there is no distinction of seats for the sons of noblemen. It was for this reason that Rufus King, the American Ambassador, sent his sons to Harrow, as the only school where no distinction was shown to rank.—*Smith's Handbook*.

#### XIV. THE SCHOOL AND TEACHER IN LITERATURE.

THOMAS GRAY. 1716—1771.

THOMAS GRAY, of all English poets the most finished artist, was born in London, in 1716, and was the only one of twelve children who survived the period of infancy. His father was a money-scriver, and of harsh and violent disposition, whose wife was forced to separate from him; and to the exertions of this excellent woman, as partner with her sister in a millinery business, the poet owed the advantages of a learned education, toward which his father had refused all assistance. He was sent to be educated at Eton, where a maternal uncle, named Antrobus, was one of the assistant-masters. He remained here six years, and made himself a good classic; he was an intimate associate of the accomplished Richard West, this being one of the most interesting school-friendships on record. West went to Oxford, whence he thus wrote to Gray:—

"You use me very cruelly: you have sent me but one letter since I have been at Oxford, and that too agreeable not to make me sensible how great my loss is in not having more. Next to seeing you is the pleasure of seeing your handwriting; next to hearing you is the pleasure of hearing from you. Really and sincerely, I wonder at you, that you thought it not worth while to answer my last letter. I hope this will have better success in behalf of your quondam school-fellow; in behalf of one who has walked hand in hand with you, like the two children in the wood,

Thro' many a flow'ry path and shelley grot,  
Where learning lull'd her in her private maze.

The very thought, you see, tips my pen with poetry, and brings Eton to my view."

Another of Gray's associates at Eton was Horace Walpole; they removed together to Cambridge; Gray resided at Peterhouse from 1735 to 1738, when he left without a degree. The spirit of Jacobitism and its concomitant hard-drinking, which then prevailed at Cambridge, ill-suited the taste of Gray; nor did the uncommon proficiency he had made at Eton hold first rank, for he complains of college impertinences, and the endurance of lectures, daily and hourly. "Must I pore into metaphysics?" asks Gray. "Alas, I can not see in the dark; nature has not furnished me with the optics of a cat. Must I pore upon mathematics? Alas, I can not see in too much light; I am no eagle. It is very possible that two and two make four, but I would

not give four farthings to demonstrate this ever so clearly; and if these be the profits of life, give me the amusements of it." Yet Gray subsequently much regretted that he had never applied his mind to the study of mathematics; and once, rather late in life, had an intention to undertake it. His time at Cambridge was devoted to classics, modern languages, and poetry; and a few Latin poems and English translations were made by him at this period. In "the agonies of leaving college," he complains of "the dust, the old boxes, the bedsteads, and tutors," that were about his ears. "I am coming away," he says, "all so fast, and leaving behind me, without the least remorse, all the beauties of Stourbridge Fair. Its white bears may roar, its apes may wring their hands, and crocodiles cry their eyes out, all's one for that; I shall not once visit them, nor so much as take my leave."

In a letter to Mr. West, he says: "I learn Italian like any dragon, and in two months am got through the 16th Book of Tasso, whom I hold in great admiration; I want you to learn too, that I may know your opinion of him; nothing can be easier than that language to any one who knows Latin and French already, and there are few so copious and expressive."

In 1739, Gray accompanied Horace Walpole on a tour through France and Italy; but, as they could not agree, Gray being, as Walpole has it, "too serious a companion," the former returned to England in 1741. He next went to Cambridge, to take his degree in Civil Law. He now devoted himself to the classics, and at the same time cultivated his muse. At Cambridge he was considered an unduly fastidious man, and the practical jokes and "incivilities" played off upon him by his fellow-inmates at Peterhouse—one of which was a false alarm of fire, through which he descended from his window to the ground by a rope—was the cause of his migrating to Pembroke Hall. He subsequently obtained the professorship of Modern History in the University. He usually passed the summer with his mother, at Stoke, near Eton, in which picturesque locality he composed his two most celebrated poems—the Ode on a Distant Prospect of Eton College, and his Elegy written in a Country Churchyard.

Gray continued to reside at Cambridge, and prosecuted his studies in natural history, as well as in almost every department of learning, until 1771, when he died, and was buried, according to his desire, by the side of his mother, at Stoke.

There scattered oft, the earliest of the year,  
By hands unseen, are showers of violets found.  
The little red-bird builds and warbles there,  
And fairy foot-steps lightly print the ground.

## ON A DISTANT PROSPECT OF ETON COLLEGE.

Ye distant spires, ye antique towers,  
 That crown the wat'ry glade,  
 Where grateful science still adores  
 Her Henry's holy shade;  
 And ye, that from the stately brow  
 Of Windsor's heights th' expanse below  
 Of grove, of lawn, of mead survey,  
 Whose turf, whose shade, whose flowers among  
 Wanders the hoary Thames along  
 His silver winding way!

Ah happy hills! ah pleasing shade!  
 Ah fields beloved in vain,  
 Where once my careless childhood stray'd  
 A stranger yet to pain!  
 I feel the gales that from ye blow  
 A momentary bliss bestow,  
 As waving fresh their gladsome wing,  
 My weary soul they seem to sooth,  
 And, redolent of joy and youth,  
 To breathe a second spring.

Say, Father Thames, for thou hast seen  
 Full many a sprightly race  
 Disporting on thy margent green  
 The paths of pleasure trace,  
 Who foremost now delight to cleave  
 With pliant arm thy glassy wave!  
 The captive linnet which enthrall!  
 What idle progeny succeed  
 To chase the rolling circle's speed,  
 Or urge the flying ball!

While some on earnest business bent  
 Their murmuring labors ply  
 'Gainst graver hours, that bring constraint  
 To sweeten liberty:  
 Some bold adventurers disdain  
 The limits of their little reign,  
 And unknown regions dare descry:  
 Still as they run they look behind,  
 They hear a voice in every wind,  
 And snatch a fearful joy.

Gay hope is theirs, by fancy fed,  
 Less pleasing when possess'd;  
 The tear forgot as soon as shed,  
 The sunshine of the breast:  
 Theirs buxom health of rosy hue,  
 Wild wit, invention ever-new,  
 And lively cheer of vigor born;  
 The thoughtless day, the easy night,  
 The spirits pure, the slumbers light,  
 That fly th' approach of morn.



Alas! regardless of their doom,  
 The little victims play!  
 No sense have they of ills to come,  
 Nor care beyond to-day:  
 Yet see how all around 'em wait  
 The Ministers of human fate,  
 And black Misfortune's baleful train!  
 Ah, show them where in ambush stand  
 To seize their prey the murth'rous band!  
 Ah, tell them they are men!

These shall the fury Passions tear,  
 The vultures of the mind,  
 Disdainful Anger, pallid Fear,  
 And Shame that sculks behind;  
 Or pining Love shall waste their youth,  
 Or Jealousy with rankling tooth,  
 That only knows the secret heart,  
 And Envy wan, and faded Care,  
 Grim-visaged comfortless Despair,  
 And Sorrow's piercing dart.

Ambition this shall tempt to rise,  
 Then whirl the wretch from high,  
 To bitter Scorn a sacrifice,  
 And grinning Infamy.  
 The stings of Falshood, those shall try,  
 And hard unkindness' alter'd eye,  
 That mocks the tear it forced to flow;  
 And keen Remorse with blood daddled,  
 And moody Madness laughing wild  
 Amid severest woe.

Lo, in the vale of years beneath  
 A grisely troop are seen,  
 The painful family of Death,  
 More hideous than their Queen:  
 This racks the joints, this fires the veins,  
 That every laboring sinew strains,  
 Those in the deeper vitals rage:  
 Lo, Poverty, to fill the band,  
 That numbs the soul with icy hand,  
 And slow-consuming Age.

To each his suff'rings: all are men,  
 Condemn'd alike to groan;  
 The tender for another's pain,  
 Th' unfeeling for his own.  
 Yet ah! why should they know their fate?  
 Since sorrow never comes too late,  
 And happiness too swiftly flies.  
 Thought would destroy their paradise.  
 No more; where ignorance is bliss,  
 'Tis folly to be wise.

## THE ALLIANCE OF EDUCATION AND GOVERNMENT.

## A FRAGMENT.

As sickly plants betray a niggard earth,  
 Whose barren bosom starves her gen'rous birth,  
 Nor genial warmth, nor genial juice retains  
 Their roots to feed, and fill their verdant veins;  
 And as in climes, where Winter holds his reign,  
 The soil, though fertile, will not team in vain,  
 Forbids her gems to swell, her shades to rise,  
 Nor trusts her blossoms to the churlish skies:  
 So draw mankind in vain the vital airs,  
 Uniform'd, unfriended, by those kindly cares,  
 That health and vigour to the soul impart,  
 Spread the young thought, and warm the opening heart:  
 So fond Instruction on the growing powers  
 Of nature idly lavishes her stores,  
 If equal Justice with unclouded face  
 Smile not indulgent on the rising race,  
 And scatter with a free, though frugal hand  
 Light golden showers of plenty o'er the land:  
 But Tyranny has fix'd her empire there,  
 To check their tender hopes with chilling fear,  
 And blast the blooming promise of the year.

This spacious animated scene survey,  
 From where the rolling orb, that gives the day,  
 His sable sons with nearer course surrounds  
 To either pole, and life's remotest bounds.  
 How rude soe'er th' exterior form we find,  
 Howe'er opinion tinge the varied mind,  
 Alike, to all the kind, impartial Heav'n  
 The sparks of truth and happiness has giv'n;  
 With sense to feel, with memory to retain,  
 They follow pleasure, and they fly from pain;  
 Their judgment mends the plan their fancy draws,  
 Th' event presages, and explores the cause;  
 The soft returns of gratitude they know,  
 By fraud elude, by force repel the foe;  
 While mutual wishes, mutual woes endear  
 The social smile and sympathetic tear.

Say, then, through ages by what fate confined  
 To different climes seem different souls assign'd?  
 Here measured laws and philosophic ease  
 Fix, and improve the polish'd arts of peace.  
 There industry and gain their vigils keep,  
 Command the winds, and tame th' unwilling deep.  
 Here force and hardy deeds of blood prevail;  
 There languid pleasure sighs in every gale.  
 Oft o'er the trembling nations from afar  
 Has Scythia breathed the living cloud of war;  
 And, where the deluge burst, with sweepy sway  
 Their arms, their kings, their gods were roll'd away.  
 As oft have issued, host impelling host,  
 The blue-eyed myriads from the Baltic coast.  
 The prostrate South to the destroyer yields  
 Her boasted titles and her golden fields.

With grim delight the brood of winter view  
 A brighter day, and heavens of azure hue,  
 Scent the new fragrance of the breathing rose,  
 And quaff the pendent vintage as it grows,  
 Proud of the yoke, and pliant to the rod,  
 Why yet does Asia dread a monarch's nod,  
 While European freedom still withstands  
 Th' encroaching tide, that drowns her lessening lands;  
 And sees far off with an indignant groan  
 Her native plains, and empires once her own.  
 Can opener skies and suns of fiercer flame  
 O'erpower the fire that animates our frame;  
 As lamps, that shed at eve a cheerful ray,  
 Fade and expire beneath the eye of day?  
 Need we the influence of the northern star  
 To string our nerves and steel our hearts to war?  
 And, where the face of nature laughs around,  
 Must sick'ning virtue fly the tainted ground?  
 Unmanly thought! what seasons can control,  
 What fancied zone can circumscribe the soul,  
 Who, conscious of the source from whence she springs,  
 By reason's light, on resolution's wings,  
 Spite of her frail companion, dauntless goes  
 O'er Lybia's deserts and through Zembla's snows?  
 She bids each slumbering energy awake,  
 Another touch, another temper take,  
 Suspends th' inferior laws, that rule our clay:  
 The stubborn elements confess her sway;  
 Their little wants, their low desires, refine,  
 And raise the mortal to a height divine.

Not but the human fabric from the birth  
 Imbibes a flavour of its parent earth.  
 As various tracts enforce a various toil,  
 The manners speak the idiom of their soil.  
 An iron race the mountain-cliffs maintain,  
 Foes to the gentler genius of the plain:  
 For where unwearied sinews must be found  
 With side-long plough to quell the flinty ground,  
 To turn the torrent's swift-descending flood,  
 To brave the savage rushing from the wood,  
 What wonder, if to patient valour train'd  
 They guard with spirit, what by strength they gain'd?  
 And while their rocky ramparts round they see,  
 The rough abode of want and liberty,  
 (As lawless force from confidence will grow)  
 Insult the plenty of the vales below?  
 What wonder, in the sultry climes, that spread,  
 Where Nile redundant o'er his summer-bed  
 From his broad bosom life and verdure flings,  
 And broods o'er Egypt with his wat'ry wings,  
 If with silvent'rous oar and ready sail  
 The dusky people drive before the gale;  
 Or on frail floats to neighb'ring cities ride,  
 That rise and glitter o'er the ambient tide.

## XV. NATHAN GUILFORD.

BY WILLIAM T. COGGESHALL.

(Ohio State Librarian.)

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NATHAN GUILFORD, the leader of the movement by which the first liberal school-law for Ohio was secured, was the son of a physician, and was born in Spencer township, Worcester county, Massachusetts, on the nineteenth day of July, 1786. In his boyhood he worked steadily on his father's farm, during the spring and summer months, and attended a district school in the fall and winter, of each year. A marked disposition for reading and study led his father to determine that he should have a liberal education. Nathan was accordingly sent to a classical school, at Leicester, where he fitted himself for college. He entered Yale College when he was twenty-two years of age, in 1808, and graduated with a respectable position in the class of 1812. He was not distinguished for any special aptitudes or powers, but was regarded as a young man of good habits and fair talent, who would devote healthful energies, of mind and body, to some good work.

For a few months Mr. Guilford conducted a classical school at Worcester, Massachusetts. He then determined to make the practice of law his business, and entered at once upon the study of his profession. When he had been admitted to the bar, looking toward what was then the goal of many an earnest ambition, he emigrated to the West, and settled in Kentucky, with the probable intention of entering actively into political life; but opportunity did not occur, or his intentions changed, and in 1816 he removed to Cincinnati. There Mr. Guilford opened a law-office; but he soon engaged also in other pursuits. Following those inclinations which led the friends of his youth to trust that he would distinguish himself by useful identification with some enterprise for public welfare, he became known as a zealous advocate of a liberal system of common schools. As fast as his acquaintance extended, he impressed his views of what ought to be done for popular education in Ohio upon his friends, and he opened an extensive correspondence with gentlemen of influence in the middle and northern portions of the state.

Having once fairly decided that his plans ought to be accepted, he was not disposed to give up their advocacy because he found but a

few willing listeners. Opposition and indifference alike urged him to closer thought and more active efforts. The laws then existing were incompetent for, and the people generally were opposed to, any thing like an active movement toward the establishment of an efficient system of free schools. Not satisfied with the slow progress his conversation and his correspondence made, Mr. Guilford conceived the idea of securing the attention of the people by means of an almanac. "*Solomon Thrifty's Almanac*" was immediately issued. It contained the calendar, the "weather," and the astronomical changes, duly set down and certified to; but in addition to these, and to paragraphs of direct service to the husbandman, it had, on every page, something about free education—the value of common schools—the importance of general intelligence. It was a good almanac, and for seven years had an extensive circulation.

Meantime Mr. Guilford had opened a book-store in Cincinnati, and had become a publisher of other works as well as "*Solomon Thrifty's Almanac*." Wherever an opportunity offered, or could appropriately be taken, those works contained good words for free schools.

In the year 1820, Mr. Guilford was in correspondence with a considerable number of influential men who sympathized with, and were proud to act for, the movement to which he had been calling public attention. The first general school-law for Ohio, authorizing directors, committees, and clerks, with power to assess local taxes, build school-houses, and employ teachers, was passed by the legislature of 1820-21. The next year a committee, of which Caleb Atwater was chairman, recommended the appointment of seven commissions, to devise and report an efficient system of common schools. That committee was authorized; and Governor Allen Trimble appointed Caleb Atwater, Rev. John Collins, Rev. James Hoge, Nathan Guilford, Ephraim Cutler, Josiah Barber, and James Bell. Atwater, Collins, and Hoge agreed upon a report, and presented it to the legislature of 1823-24. It recommended a school system based upon the one then existing in the State of New York, making no provision for a general fund, other than that which might arise from the sale and lease of school-lands.

Nathan Guilford openly refused to co-operate with the committee. He said their plans were inadequate. In order that his position might be understood and widely made known, he addressed a letter to the committee, and a memorial to the General Assembly, in which he advocated with zeal and force the assessment of a general county tax, *ad valorem*. That was the first public appeal in Ohio for a legislative enactment requiring general taxation for school purposes. Mr. Guilford's memorial was printed, by order of the legislature, with the report of the committee. Its propositions were strenuously opposed

by a majority of the legislators, and the school-law of 1821 was not amended.

But Mr. Guilford, and the few who were willing to act with him, were not discouraged. They appealed from the legislature to the people. Mr. Guilford announced himself as a candidate for the state senate, and was elected by a handsome majority. When the legislature organized, he was appointed chairman of the school committee. He had prepared an elaborate report, arguing the cause of popular education, and urging his plans as not only practicable but as economical; and to that report he added a bill, which required a tax of one half-mill, to be levied by county commissioners, made township clerks and county auditors school officers, and provided for school examiners.

This report and bill were the subjects of animated discussion. Mr. Guilford did not content himself with public defense; but he devoted all the hours he could spare from other duties in explaining his bill privately to members of the legislature, and to influential men at the capital. When the final vote was taken in the senate, it was announced that the bill had passed, without amendment, by a vote of twenty-eight to eight.

Immediately Mr. Guilford, most actively assisted by Ephraim Cutler, of Washington county, devoted his energies to the preparation of the house of representatives for proper attention to the school-bill.

Various amendments were offered when the bill was reported to the house; but so decidedly had all, who were willing to take a step forward in school legislation, been impressed that what Mr. Guilford had prepared was wise and practicable, that his bill was passed, without the change of a word, by a vote of forty-six ayes to twenty-four nays—twenty-two majority.

Mr. Guilford returned to his constituents, in Hamilton county, determined that, whatever reception the law might have in other portions of the state, it should not fail to be useful in Cincinnati.

Public schools did not exist in Cincinnati in 1825. Private schools were numerous. The public money was not sufficient to keep open the schools more than six weeks in a year, and, to make up the deficits in the expenses of a term, rate-bills were assessed on all who sent pupils. The law of 1824-25, in a considerable degree, relieved the embarrassments of those who were laboring for the establishment of free schools, but it did not afford an income half sufficient. Mr. Guilford, taking counsel with wise friends, devoted himself to the then unpromising labor of making city free schools popular and efficient. In 1827, he called a public meeting for the purpose of discussing the school wants of the city, and devising ways and means by



which they might be provided for. Five gentlemen attended the meeting. They were all discouraged but Nathan Guilford. He was resolved that the few present should not shrink from service, and at his suggestion the meeting was organized. Mr. Guilford then moved that a committee be appointed, to report at an adjourned meeting. The motion prevailed, and Mr. Guilford was appointed to prepare the report. When the time set for the adjourned meeting arrived, three gentlemen assembled at the council-chamber—the president, the secretary, and Mr. Guilford. The expected report was ready. It recommended a special law for Cincinnati; set forth what ought to be its leading features; and forcibly argued the growing necessity for free schools for all the children of the city. The report was *unanimously* adopted. It was then signed by the officers of the meeting, and a petition, praying that the general assembly would give it respectful attention, was industriously circulated. Robert T. Lytle and Elijah Hayward then represented Hamilton county in the general assembly. When they received the report, its suggestions were prayed for by a large number of the most influential of their constituents. A bill was immediately presented by Mr. Lytle; and, without formidable opposition, became a law. It authorized the city council to levy a tax, and provided for local school-directors. The law read, however, “the city council *may* tax.” An indignation meeting was held, in which the legislators for Hamilton county were severely condemned “for increasing the burden of taxation.” Several large property-holders opposed the execution of the law with bitterness; and, for one year, the city council took no action respecting it.

Nathan Guilford then announced himself as a candidate for election in the city council. Other candidates “came out on the school question,” and an exciting canvass was the result. The friends of common school progress triumphed.

At the first session of the new council, Nathan Guilford proposed a tax of one per cent. This proposition was met with scorn; but Mr. Guilford calmly presented the reasons why, in his judgment, such a tax was required, and the levy was ordered. By that tax common schools were supported one year. When it was understood that free schools would be regularly open, a new difficulty met the school officers. There were no school-houses. The schools had to be kept in the basements of churches, and in dilapidated tenements, which could be rented cheap. Mr. Guilford brought an ordinance before council, proposing a loan of \$40,000, to be obtained on bonds running twenty years, bearing interest, to meet which a tax of one mill was suggested. This measure was adopted, after fair discussion, during which amendments, designed to divide the school-men, were

frequently offered. The money was obtained in Philadelphia, and the first school-house site was purchased. It was on Race street, near Front. A substantial building was immediately erected, and free schools were then fairly established in Cincinnati. But the people did not yet take general interest in their prosperity. Mr. Guilford felt the necessity of directing public attention to the free school movement; and, upon consultation with a few citizens, determined that a procession of the school-children, with music and banners, should march through the principal streets. He suggested this idea to the teachers. Without exception they declined to participate, alledging that such a demonstration would signally fail of the object desired, and that all who took part in it would be severely ridiculed. Mr. Guilford, however, went quietly on with his preparations; and when he declared that the demonstration would, at all hazards, be made, the teachers reconsidered their resolution and informed him that they would co-operate. Mr. Guilford then applied to council for a small appropriation, to purchase banners and provide music. His application was rejected. He ordered banners at his own expense, engaged a band of music, and employed all the sextons of the city to ring the bells of the churches which they attended, at ten o'clock on the morning of the day appointed for the demonstration.

The heavens were propitious. Many children, who had been instructed to appear in their best clothes, and who anticipated a happy holiday, looked up gladly to the clear sky when they arose, on the morning set apart for the first common school celebration in Cincinnati. At ten o'clock the church-bells began to ring—groups of school-children then crowded the sidewalks, on their way to Broadway, where the procession was to be formed. There they were met by a band of music; each school was presented with a banner, on which was an appropriate motto; and all were marched in line to Fourth street, Nathan Guilford and Calvin Fletcher leading the procession. The scene was novel. The ringing of the church-bells—the hurrying along the streets of hundreds of well-dressed children—the lively strains discoursed by the band—all had contributed to awaken the people of the city to a clear sense of the fact that an unusual demonstration was to be made, and Fourth street was crowded with curious, expectant people. The procession marched to the corner of Fourth and Main streets, where the children were conducted into the Presbyterian church, (the first edifice for religious services erected in Cincinnati.) Every portion of the large assembly-room was immediately crowded. Rev. Joshua L. Wilson, the pastor, invoked the blessing of God upon the children assembled, and upon the cause, to promote which they had been gathered together. Addresses were delivered by Mr. Guil-

ford and by Rev. Mr. Robinson—the band played several lively tunes—the children were delighted—and all the people were given fit occasion to talk about the common schools. The newspapers of the city all spoke in high praise of the demonstration and its effect; and from that day dates the interest in popular education which has made Cincinnati distinguished among the cities of our country for liberal and thorough free schools.\*

Having secured good feeling for the schools, Mr. Guilford next gave his attention to the improvement of text-books. He prepared an Arithmetic, which was for many years almost universally used; and he published a revised edition of Webster's Spelling-book, improving it, as his friends have claimed, in many important particulars, which have since been recognized in other spelling-books.

Mr. Guilford, having mainly given up the practice of the law, was engaged in Cincinnati, as a bookseller and publisher, the greater portion of the time between 1825 and 1843. He then started the "*Daily Atlas*," a Whig journal, of which he was chief editor and proprietor until 1847. In 1849, a law was passed authorizing the Cincinnati Board of School Visitors to elect a superintendent of the city schools. Mr. Guilford was chosen. His health had become impaired, but he gave the best energies he could command to a work which enlisted the warmest emotions of his heart. He continued in office till 1852, when he was elected to the office of local magistrate. He was an active friend of the movement by which the Hughes High School, in 1847, and the Woodward, in 1852, were opened, under the auspices of the Cincinnati School Board; and in numerous other good works, of which we have not sufficient data to give particulars, manifested those noble characteristics which his common school labors so emphatically evince—characteristics which will associate his memory, through all the history of Ohio, with one of her proudest and most-to-be-cherished institutions.

Mr. Guilford died in the sixty-ninth year of his age, December 18th, 1854, lamented as an invaluable citizen, a philanthropist, and an exemplary husband and father.

Mr. Guilford was a tall, compactly-built man. His face was strongly marked, in his later years, with lines which showed that he had been a severe thinker and an earnest worker.

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\* In his first report as superintendent of schools, (1837,) Samuel Lewis said the only free schools in Ohio were in Cincinnati.

## XVI. PUBLIC INSTRUCTION IN NORWAY.

By HARTVIG NISSEN, Educational Councillor.

### I. PRIMARY OR DISTRICT SCHOOLS.

Norway has an area of about 5,750 square miles, whereof about two-fifths are unfit for any sort of cultivation, while of the remaining three-fifths, large tracts are covered with scanty wood, and scarcely fifty geographical miles are cultivated in corn-fields.

There are in Norway about 1,400,000 inhabitants. Of these about 180,000 dwell in the larger or smaller towns, while the remaining 1,220,000 are spread over the country districts. Generally, only one family dwells in each separate farm-house or cottage, and the distances of these houses or cottages from each other are, in many parts of the country, so great that it is not possible to bring together in any one spot a sufficient number of children to form a school. Herein lies an essential impediment to the satisfactory organization of the system of schools in the country districts of Norway. A sort of coercive or compulsory system, as regards the education of children, has been in operation, according to the Norwegian law, since 1789. The parents and guardians of every child are under a legal obligation to instruct, or cause the child to be instructed, in those elementary branches of education which are usually taught in the district schools. Although the law does not usually bind parents to send their children to any school properly so called, and still less to any public school established by the state, yet the result is the same as if it did so as regards the great majority of the lower classes, who are unable and have not time to instruct their children, nor means to pay for their children's instruction in private schools or by private teachers, especially in the country districts, where, as a matter of course, cheap private schools can not exist together with the public schools. The time during which children must either go to school or receive instruction at home, begins in the seventh or eighth year of their age, and ends at the period of their confirmation, which usually takes place when they are fourteen or fifteen years old. The number of children in the country districts, who are thus under the conditional obligation of going to school, may be taken to be about 198,000, of whom about 4,000 may be supposed to receive instruction either at home or in the higher public or private schools. In the towns the number of such children is about 25,000, of whom about 6,000 may be supposed to receive instruction in private or in the higher public schools. The number of the above-named children attending the

district schools may thus be estimated at about 213,000, while the number of those not attending the district schools may be taken to be about 10,000.

The state having thus imposed on parents a duty which they would not usually be able to fulfill, unless there existed, at proper intervals throughout the country, schools to which the children could be sent to obtain the instruction required by the law, it has also, by the same law, imposed on every district (in the country on every parish) the duty of establishing a sufficient number of such schools. It must be remarked that every town forms one municipality, and so does also every parish in the country, a certain number of towns and parishes forming one higher municipal body, called an "Amt" (county), of which there are eighteen in the whole country. This duty is, on account of the local peculiarities of the country above described, connected with great difficulties; and most places have hitherto been forced to make shift with very scantily endowed schools, where instruction is imparted only during a short time in the course of the year.

The schools in the country districts are divided into stationary or permanent, and circuit or itinerating schools. Every stationary school is attached to the nearest surrounding district, the children of which (as before mentioned) must go to the school, unless their parents provide in another manner for their receiving the instruction prescribed by law. The distance which the children have to go to such a school is usually not more than a quarter of a Norwegian mile, or about two English miles; sometimes, however, it is as much as four English miles. Every stationary school has its house, comprising a school-room and an apartment for the master. Every master at a stationary school has, moreover, besides his salary (which on an average can be reckoned at about 90 sp. drs.\*), a free lodging, and a certain portion of land for his own use. The number of stationary schools in the country districts is estimated to be about 380, and the number of children who attend them about 24,000; there are thus, on an average, 63 children to each school. The time of instruction is from 16 to more than 40 weeks in the year; on an average it is about 30 weeks or 180 days in the year. As most of the pupils of these schools are divided into two classes, which attend school on alternate days, each pupil has on an average, opportunity for receiving instruction 90 days in the year.

The majority of the children belonging to the country population attend the circulating or itinerant schools. Every parish, which usually contains several churches, with their separate church districts, is divided into school districts. Every such school district not possessing one of the above described stationary schools, is again subdivided into several "Roder" (sections or circuits), the children of each of which attend the school together. Thus, although the whole district only has one teacher, there are in reality as many schools as there are sections or circuits in each

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\* One pound sterling is equal to four specie dollars and a half.

district. A district for a circulating school consists commonly of three or four sections. The teacher goes round from one section or circuit to another, to keep school. According to law, the youth of each circuit are to receive instruction during at least three months, or, where this is not possible, during at least two months in the year; but the fact is, that in some places the children in the circuit schools receive instruction during twelve weeks, but on an average during not more than eight weeks, over the whole country. The school is not, however, kept uninterruptedly in the same spot while within the limits of the same circuit. It is the duty of every farmer (Gaardmand) or small proprietor in the circuit, each in his turn, to provide a proper school-room in his own house, and to give the teacher board and lodging for a certain time, which is usually in proportion to the extent of the estate. The teacher usually moves with the school every week to a new house. The eight weeks in each year, during which the instruction is usually given by these schools in each circuit, are not consecutive, but distributed in several terms at various times, from October to April, that part of the year within the limits of which all the instruction of the circuit schools in most places begins and ends. In some places the teacher of the circuit school gives instruction also during some of the summer months, having either a district consisting of a greater number of circuits than usual, or to teach in each circuit during a greater number of weeks than the minimum required by law. The salaries of the circuit schoolmasters are very different. In some parts of the country only 12 sp. dra. are given, besides board and lodging in school time, for 30 weeks' teaching yearly, while in other parts the salary is 40 sp. dra. The whole number of such itinerating schoolmasters is about 2,000, and of circuits about 7,000.

According to the existing law on district schools in towns, every town is bound to establish so many schools that every child can receive two days' instruction per week all the year round, with the exception of the usual vacation, no teacher having on the same day more than 60 pupils. The district schools in towns are usually so arranged that every child receives two or three days' instruction weekly. In most places each school is provided with only one teacher, who, where each child is to receive three days' instruction weekly, teaches on alternate days each of the two classes into which the children belonging to the school are divided; while in places where each child is to receive two days' instruction weekly, he teaches every third day each of the three classes into which the children belonging to the school are in that case divided. The division into classes is usually regulated by the advancement of the pupils in knowledge. In places where the children have access to the school two days in the week, each child will be able to attend school about 84 days in the year, and in those places where the children have access to the school three days in the week, about 126 days in the year.

What has been above remarked concerning the time of instruction in the different classes of district schools, applies only to that time during



which the children have an opportunity of receiving instruction, and not to the time of instruction whereof the majority of the children actually avail themselves. Parents can indeed, according to law, be punished by the infliction of fines when their children, from having neglected to attend school, have not made such progress as they ought to have made; but in practice, this measure is seldom or never adopted unless the neglect appears to have taken place in a very remarkable degree. The fact is, that the children who attend circuit schools do not on an average actually receive instruction during more than four weeks in the course of the year. It must, however, be observed, that during the year, or at least the half-year, immediately preceding their confirmation, which usually takes place in the interval between the fourteenth and fifteenth year of their age, the clergyman of the place gives the children who are to be confirmed instruction in religion, several hours weekly, besides the instruction which they receive at the schools. Moreover, according to the existing law for the organization of schools in the country, all children above twelve years of age are bound, until two years after confirmation, to appear in church at the public catechisms which are conducted by the clergyman in connection with the usual divine service, and are held several times a year in each church. It must also be observed that in many of the country districts the parents are anxious, as far as they are able, to assist the school in giving their children religious instruction particularly. As regards those children who belong to the permanent schools in the country, the disproportion between the opportunity of receiving instruction and the instruction actually received is not so great as it is with respect to those who belong to the circuit schools. The same remark may be, on the whole, applied also to the schools in towns.

According to law, instruction is to be given at the district schools, as well in the country as in towns, in reading, religion, singing, writing, and arithmetic. School begins and ends every day with prayer or psalm singing, or both. In a number of circuit schools, the instruction is (contrary to law) limited to reading and religion, and in the great majority of circuit schools the instruction in writing and arithmetic does not extend beyond the first rudiments. As the circuit schools are kept alternately in the houses of the several farmers, and very frequently in the same rooms where the inmates are engaged in their daily avocations, there exist, of course, obstacles to the proper organization and successful operations of the schools. Very frequently the room is also extremely unwholesome, and especially it often happens that all ventilation is impossible, the windows not even being made to open. Drawings of rooms of itinerating schools in different parts of the country, and a drawing of the farm where one of these rooms is found, were exhibited at the Educational Exhibition. In many permanent schools, as well in the country as in towns, several other branches of instruction have been adopted; for instance, orthography, and sometimes a little history and geography.

Some superior district schools have been lately established, in which

the more advanced children, not only from the nearest surrounding district, but from the whole parish or municipality, besides receiving instruction in religion, writing, and arithmetic, learn the orthography and grammar of their mother tongue, history, geography, mensuration, and the rudiments of natural history and physics, also sometimes a foreign language, usually English or German. The number of such schools is as yet very small, as the municipalities or parishes are not obliged to establish any school of this kind. They however often do so voluntarily, encouraged by the hope of obtaining some assistance from the amount of money which the Storting (the National Assembly) has granted for the establishment of such higher district schools. In these schools a small sum is usually paid by the pupils; in all other district schools no payment is taken. The expense of the district schools in the country, including the outlay in kind of board and lodging for the circuit schoolmasters, is about 115,000 sp. drs. yearly. The cost of the district schools in the towns may be estimated at about 82,000 sp. drs.; adding to this the sum granted by the state to the five seminaries for teachers, namely about 8,000 sp. drs., together with the state subsidies to the poorer districts, it will appear that the country devotes on the whole about 195,000 sp. drs. yearly to the endowment and support of the district schools, in which about 213,000 children receive instruction.

The district schools are, with few exceptions, but poorly supplied with the means of instruction. This is especially the case with regard to the circuit schools, of which many have (beyond the pupils' own religious books) no other help than some few copies of the New Testament, a psalm book, and a rude but peculiar instrument used in teaching singing, called Psalmodicon, or Monocord, which in many places is also used in family worship. These means of instruction, belonging to the itinerating schools, the master, as a matter of course, takes with him from one farm-house to another, as he moves. All schools established by law lie under the joint management of the municipal authority (Formandskabet) in the towns and parishes, and the clergyman of the parish. No tax can be levied towards the support and improvement of schools, but after a grant of the municipality, which, however, by the law is bound to grant the means absolutely necessary to establish and keep up proper schools.\* The head management of such schools is vested in a board, called "Stiftidirectionen," which consists of the high sheriff and the bishop of the diocese, from whom the more important matters of education are sent to the Governmental department for church and education, in order to be submitted to the decision of government. Dissenters, of which there are but few in Norway, may send their children to school, but they are not obliged to let them take part in the religious instruction, but they, as well as the members of the Established Church, are by law bound to attend to the proper religious and temporal instruction of their children.

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\* It consequently depends on the people themselves whether the school is to be properly developed or not.

From the above remarks about the common schools in Norway it will be seen that the instruction given in most of these schools is of a very indifferent kind. But still the great bulk of the population does not stand low in point of education when compared with the people of other countries; this is a consequence partly of the fact that no child grows up quite destitute of education; and partly to the cultivating and improving impulses found within life itself out of school. That the clergyman of the parish has the charge of the religious instruction of the children, and that the parents also very often pay a great deal of attention to this point, has been remarked above. The farms being spread widely over the country certainly increases the difficulties in properly arranging and fitting up the school, and also excludes the improvement that frequent intercourse with a great many other people is sure to bring about; but, on the other hand, it gives the life within each family a direction by which the mind of the individual is turned inwards, and creates a desire of reading, and of thinking closely over what has been read. The grandeur of the scenery in many parts of the country excites the imagination, and keeps up and develops the poetic element in the mind. Singing and narrations of old stories and traditions from the remotest times—nay, even poetical contests—therefore, form a peculiar feature and an essential part of the social entertainment of the peasants of Norway, especially in the mountainous parts, when they meet at weddings, and on other festive occasions. The many dangers by which nature has surrounded the Norwegian peasant, and the many difficulties that he has to struggle against in various parts of the country, strengthens his courage and sharpens his wit and acuteness. But more than anything else the peculiar social and political station of the Norwegian peasant contributes to promote the development of his mental faculties, though but inefficiently begun in the school. Even when the country of Norway was during its union with Denmark deprived of national independence, the Norwegian citizen and peasant enjoyed personal liberty and social independence. The Norwegian "bonde," or yeoman, has never been oppressed by a predominant nobility, who never gained any ascendancy there. His feeling of liberty and independence is, therefore, strongly developed. Add to this, that the whole country is divided between a great many small proprietors, whose farms, however, are large enough to render it necessary for them to employ eight or twelve horses for the proper cultivation of their fields; and this affords an opportunity to the proprietor to spend much of his time in the study of, more or less, practical science. There is, therefore, comparatively speaking, a very large number of persons whose social position not only allows but induces them to cultivate their own minds, and take care of the education of their children. They are still more induced to do so by their political position. Every landed proprietor, however little his property may be, has a vote, and may himself be elected as a member of "Formandskabet" (the municipal authority) and of "Stortinget" (the National Assembly). At present more than half the members of the Storting are peasants, and

many among them, who have received no instruction but what the common schools above-mentioned have been able to give them, have, by the agencies of life itself been prompted by their own exertions to acquire such an amount of knowledge, and their mental faculties have been so much developed, that they in the Storting make most pithy and eloquent speeches upon all political and social subjects.

#### II. BURGHER AND REAL SCHOOLS.

Of the 10,000 children who do not belong to the district schools about 4,000 may be supposed to receive instruction at home from parents, tutors, or governesses. Of the remaining 6,000, about one-half attend private schools, which are about on a par with, or very little superior to, the better class of district schools in the towns. The other half, or about 3,000, may be supposed to attend higher public or private schools, both for girls and boys, but principally the latter. Among these schools the so-called Burgher-schools should be first mentioned, of which there are more than twenty in different towns. There are public schools, in many of which girls are also educated, but in separate classes or sections. The branches of instruction in these schools, which in the smaller towns have two or three, and in the larger towns four or five or more teachers, are usually reading, writing, arithmetic, religion, orthography and grammar of the mother-tongue, one or more of the foreign languages—German, French, and English,—history, geography, the rudiments of mathematics, and sometimes the rudiments of drawing, natural history, and physics. The most completely endowed Burgher schools are called "Real" schools. Thus, Christiania, Trondhjem, and Bergen have each a "Real" school, established partly by the public, and partly by private legacies. In Christiania there are also several more or less complete private "Real" schools. The whole amount of expenses for the Burgher schools is about 30,000 sp. dollars.

#### III. LEARNED SCHOOLS.

In eleven towns there exists (usually instead of, but sometimes besides, the Burgher schools) public Real schools, established by the State, which are placed in connection with the learned schools (Latin schools) established by the State. The peculiarity of the arrangement of these schools is, that the lower classes (until the pupils complete their twelfth year as a normal age) form, as it were, a common trunk or stem, from which there afterwards issue two branches, the Latin school and the Real school. The first of these, the Latin or learned school, imparts during five or six years, to those who desire to go to the University, a special preparatory instruction, of which the classical languages and their literature form an essential part. The other branch, or the Real school, imparts a suitable preparatory instruction to those pupils who are destined, after completing their fifteenth or sixteenth year, to enter on practical life, or to attend higher technical or commercial special schools, (of which there are scarcely any in this country,) or to enter the military school. The branches of instruction in the united

Latin and Real schools are in the common classes—the mother-tongue, writing and drawing, singing and gymnastics, arithmetic, religious instruction, geography, history, natural history, German, and French. In the Latin classes of the united schools the branches of instruction are as follows—the mother-tongue, religious instruction, geography, history, German, French, mathematics, Latin, Greek, and Hebrew. In the Real classes the instruction is given in the mother-tongue, religious instruction, geography, history, natural history, German, French, English, mathematics, natural philosophy, writing, and drawing. In some of these schools the highest Real class gives the pupils a special preparation for commercial life by instruction in commercial correspondence, book-keeping, the properties of goods, &c.

In Christiania there are some private Latin and Real schools, the organization of which is in all essential points the same as the public schools. It must, however, be remembered, that while all the classes in the private school described have annual courses, the classes in the public Latin and Real schools have generally biennial courses, whence it follows that the number of classes in the latter is reduced to about half the number adopted in the former; and the total course of the learned school is likewise, on account of its less perfect organization with biennial classes, accomplished in six years. Five of these schools have also a less complete arrangement in the higher classes, the highest biennial Latin class being wanting; they can not, therefore, send pupils directly to the University, and are frequently called, to distinguish them from the others, "Middel-og Real skoler." In the eleven public Latin and Real schools the number of pupils is altogether 700. There are also three public learned or Latin schools, which are not connected with the Real schools, viz., in Christiania, Trondhjem, and Bergen. They are destined, as well as the Latin schools which are connected with Real schools, to prepare those who intend to complete their education at the University. Their organization differs from that of the united Latin schools only inasmuch as they have retained the old arrangement in the study of languages, according to which the Latin language is to be learned before the modern languages; this order being reversed in the Latin schools which are connected with Real schools. The number of pupils in the three independent Latin schools is altogether somewhat over 300. These three schools are supported by their own resources, which they have obtained partly by legacies, and partly by endowments from the State in former times. Their yearly income arising from interests and from payments of pupils amounts altogether to about 28,000 specie dollars, which amount is, however, not wholly expended for the necessities of the schools. Adding to this 86,000 sp. drs., which sum represents the income of the combined Latin and Real schools, arising from pupils, payments, and contributions from the public and the State. The result is 64,000 sp. drs. as the total sum annually devoted to the support of the public learned and Real schools. As to the masters in the public Latin and Real schools, it must be

observed that nobody can be appointed as a "Rector" (or manager) of such a school unless he has first passed the first two examinations, common for all students in the university, namely, in the ancient and modern languages, history, geography, mathematics, and natural history, and after that the so-called philological examination. Vide "Academiske Love for Studerende ved det Kongelige Norske Fredriks Universitet," p. 18, sec. 12, and p. 40. Nobody can be appointed an "Overlærer" unless he has passed the examinations just mentioned, or the examination in divinity, or the examination by law, of 15th September, 1851, required to be passed by all who wish to be Real teachers.

The highest academy for public instruction is the University in Christiania. It has 81 professors, a very considerable library, and several valuable collections. 60,000 specie dollars per annum is the amount devoted to the University.

#### IV. ASYLUMS AND SPECIAL SCHOOLS.

Besides the schools hitherto enumerated, there should also be mentioned, as belonging to the general system of education, the Asylums, established in many towns, where little children from two to seven years old, stay during the daytime, while their parents are at work; and where they are not only taken care of, but also instructed in the first elements. These Asylums are supported partly by the public funds, but chiefly by voluntary annual contributions. The amount applied to the support of Asylums in the country can not, on the whole, be estimated at more than 6,000 sp. dollars.

An institution for the instruction and education of the deaf and dumb has been established by the State at Trondhjem, and there are also three private institutions for the instruction of deaf and dumb children, which are supported by the State.

Among those schools whose instruction takes a more special direction, must be named agricultural schools, drawing schools, and sailors' schools, which are all calculated for adult pupils, who have passed through the ordinary primary schools. Of agricultural schools there are fourteen. They receive young men at the age of about eighteen to twenty years. A more comprehensive account of the organization of agricultural schools may be found in the detailed description of the agricultural school at Munkvold, near Trondhjem. Of public drawing schools there are eight, which are supported partly by the public, and partly by the State. Their aim is chiefly to impart to mechanics' apprentices the necessary knowledge of drawing; besides which there are usually lectures on the rudiments of practical mathematics and physics. The yearly cost of these drawing schools is about 6,000 sp. dols., whereof one-half is applied to the drawing school at Christiania, which on this account is far more completely endowed than the others. From this school, various means of instruction and several works executed by the pupils, were exhibited at St. Martin's Hall. Of sailors' schools, to which both the state and the respective



communities furnish contributions, there are as yet only few. In many places, especially in the towns, there are Sunday schools, whose object is to impart to adults that elementary instruction, which they had not opportunities of acquiring in their childhood. For this purpose instruction is usually given during a few hours in the morning or evening in reading, writing, and arithmetic, sometimes also in the orthography, and grammar of the mother-tongue, and likewise in history and geography. Besides this, instruction is generally given in religion, or portions of Scripture are read. The cost of the Sunday schools is very inconsiderable, and is defrayed either from gifts or by public subscription.

On establishing a calculation of what the country devotes on the whole to the support of the lower and higher schools, both public and private, before mentioned, the amount must be supposed to be about 350,000 dols., not including the land possessed by the masters of the permanent schools in the country.

## XVII. MODES OF IMPROVING A FACTORY POPULATION.

THE following Paper was read by Edward Akroyd, M. P., before the "National Association for the Promotion of Social Science," in 1857.

In detailing my own exertions to improve the intellectual, moral, and physical condition of my work-people, numbering nearly 5000, I must premise that I am not singular in these efforts, nor do I take credit to myself for all that has been done in my establishment. My late father, who founded the business, took an active part in improving the condition and promoting the education of his work-people. He built a large school, attached to the works at Halifax, in the year 1839, and personally instructed a Sunday-school class. My brother co-operated with me in every beneficent provision for those in our employ, until he withdrew from business, a few years ago. Other manufacturers also have done, and are doing, their parts most cheerfully and energetically in the same direction.

My works are situated at Copley and at Halifax, in the West Riding of Yorkshire. Copley lies in a valley, on the banks of the river Calder, and the situation is one of great natural beauty. The trunk-line of the Lancashire and Yorkshire Railway passes within a few yards of the works, and parallel thereto runs the Calder and Hebble Canal.

At Copley mill, the manufactory is exclusively worsted, and the process that of spinning. The works may be called self-contained; that is, they are shut in, and form a small hamlet of themselves, in which there are no residents except those in my employ. The cottages of the work-people are intended to be model cottages; fitted up with every convenience required in such habitations, each having its garden-plot, and the whole well supplied with water, conveyed to each house in pipes. The village is also lighted with gas. About 1000 persons are employed in the mill, and every effort is made to secure their comfort, and the education of their families.

Many of the work-people are not residents in the village, and a large dining-room, capable of accommodating 700 persons, has been provided. The room is fitted up with every necessary and convenient apparatus, and the culinary department is presided over by a cook and assistants. As it has ever been an object with me rather to develop the power, and to encourage the self-reliance, of the people

than to supersede them, this establishment is managed by a committee of the work-people, appointed by and from amongst themselves. It is the duty of this committee to see that breakfast, dinner, or tea may be procured at the lowest possible cost, and that the quality and cookery of the food be good and wholesome.

A library is attached to the works, to which any of my work-people have access, free of charge.

A news-room is provided, supplied with the newspapers of the metropolis and of the locality, and also with the current periodical literature.

A band is established at the works, and its performances are very creditable. It plays out of doors occasionally, when the weather is favorable; at other times in a room provided for that purpose.

Allotment-gardens are provided for the workmen; and, in connection therewith, an horticultural and floral society has been established, to promote the knowledge and cultivation of fruits, flowers, plants, and vegetables. An exhibition is held annually, at which prizes are given for the best productions of the respective gardens.

To strengthen the habit of observation, and to cherish a taste for the beauties of nature, I give prizes for the best collection of wild plants and ferns growing in the neighborhood.

Recreation-grounds are provided for the juvenile and adult members of the establishment, and every encouragement is given to the practice of healthy out-door sports and athletic games.

A sick and funeral club is also established, and means are taken to secure regular medical attendance and medicines, for those who desire it, at a small rate of subscription. This is easily accomplished, by the numbers who avail themselves of the opportunity so offered.

Such are the arrangements which have been made at the Copley works for the material comfort of the work-people. For their spiritual welfare I have made special provision. Divine service is celebrated every Sunday in the school-room, by a chaplain attached to the works, and who resides in the midst of his flock.

What has been done at Copley has been repeated at my establishments at Halifax, on a scale enlarged in proportion to the greater number there employed; with this difference, that as the works at Copley are in the country, self-contained, isolated, and at a distance from any village, the provision alluded to is necessarily confined to my own work-people, while at Halifax my work-people, forming part of the population of that town, which numbers about 33,000 inhabitants, these institutions, instead of being confined to my own works, are in some measure thrown open to all those who choose to avail themselves of them, whether they may be in my employ or not. I

may observe that this course has been productive of the happiest and most encouraging results.

The advantages thus offered—such as the use of an extensive library and news-room, medical dispensary, sick and burial clubs, clothing society, allotment-gardens, recreation society, band and choral society—are largely used and highly appreciated, and are therefore constantly increasing, both in extent and efficiency. Here, too, several additional arrangements, of a practical economical character, have been adopted; such as the establishment of a public bakehouse, where is made bread of a good, wholesome quality, both better in kind and more economical in the means of its production than is in ordinary cases to be obtained by the poor of the working classes.

In connection with the bakehouse, I have made arrangements for the supply of tea, coffee, and soup, during winter, at low prices. I have opened a coal depôt, at which the poor only may purchase small quantities of good fuel at cost price.

As a political economist myself, I am fully aware of the objections which may be justly raised against any unwise interruptions of the ordinary channels of supply and demand. But we must recollect that, upon the common principles of trade, the prices of all articles of consumption are materially enhanced by the retailers to the poor, who must be compensated for their additional trouble, and for the loss they may sustain by the subdivision of their commodities into small parcels, and where credit is given to cover the extra risk of pecuniary loss. To meet this additional tax upon their impoverished means, the working classes have formed co-operative societies; which, buying largely at wholesale prices, are able to retail to small customers upon lower terms than some of the smaller shopkeepers can offer.

In the establishment of the bakehouse in my own district, my aim has been to secure for the poor of the working classes a good, wholesome article, at a moderate price; and, by offering an advantage to the retailers of bread, I have secured to them the almost entire distribution.

I have also been anxious to help and encourage working-men to form the habit of saving, and I have therefore established a penny savings bank, in which the pecuniary savings of juveniles and adults are received. The bank has been very successful, and the number of depositors steadily increases. Many boys contribute to the bank, generally to scrape together the means of gratifying a boyish fancy. One ambitious lad wanted a watch; others, perhaps, a toy or instrument of sport. An objection may be taken that, to teach boys to save for the indulgence of their own pleasures, is not the way to in-

calculate provident habits. But there must always be an inducement—a special object for which to save. A married man regards his wife and family; a single man looks forward to being married and becoming a householder; but a boy, who laughs at the idea of sickness and old age, saves, in the first instance, for some article of youthful desire. Implant the habit of saving in fresh young soil, and afterward it will not be difficult to train it in the right direction.

At present there remains one great and important object which I have in view for promoting habits of forethought and prudence amongst the working classes. It is the institution of a provident society, which shall place within reach of an industrious, prudent workman the following benefits:—

1. The provisions of an ordinary sick club.
2. Provision in cases of protracted illness.
3. An assurance against severe accidents.
4. A pension for old age, by means of government annuities.
5. Deferred sums, payable at any given age.
6. An ordinary life assurance, to the extent of £200.

But this object I can not accomplish alone. An association somewhat analogous to that of an assurance company is required, which shall cover a sufficiently large area and variety of occupation to produce an equitable result. For this purpose I am promoting the formation of a large society, upon a permanent representation basis, which shall include the whole of the West Riding of Yorkshire. I broached the scheme during the autumn of last year, through the medium of a pamphlet, and met with encouraging success. An influential provisional committee was formed, which includes the names of many of the nobility, clergy, gentry, and manufacturers of the Riding, representing all classes and parties. At present, the rules and regulations of the proposed society are being matured by an executive committee.

I employ about 1100 children in my works, between the ages of eight and thirteen, all of whom, in accordance with the requirements of that act, attend school for five days in the week, and for three hours each day. Now, although their attendance at school can not but be, under any circumstances, beneficial, I have discovered that, owing to the entire ignorance of the children when they first become employed, and to the too early cessation of the period when they are by law compelled to attend school, the results are not so satisfactory as could be desired. I have endeavored to remedy these evils by establishing an infant school, as a preliminary to factory education, and for children from three to eight years of age. A charge of two pence per week is made; and since the school has numbered 380 infants it has been almost self-supporting.

Supplementary to the factory schools, I have instituted a working-man's college, for the education of evening classes of youths and adults above thirteen, the period when the factory education required by law ceases. The college is under the superintendence of trained and certificated masters, and there are now about 150 students.

Besides a working-man's college, I have opened, with even more success, evening classes for young women; reserving one evening in each week for industrial training, and for the cultivation of useful domestic arts, which are too often neglected in the manufacturing districts. About 160 young women diligently attend these classes, which are conducted by a well-trained and zealous schoolmistress.

In concluding this paper, I will only add, that I am fully convinced, by the result of the experiments I have thus made, and their uniform success, that it is possible to make the people feel that their own and their employer's interests are identical; provided the latter, who may be considered the stewards, under God, of the commercial wealth of the nation, will acquit themselves of their responsibilities toward those who, under the order of Providence, are intrusted to their care.



## XVIII. EDUCATIONAL MISCELLANY.

### THE PRIMER.

The earliest printed book used in the tuition of youth was the "*Primer*" (*Primarius*, Latin,) a small prayer-book, in which children were taught to read, and the Romish book of devotions in the monastic schools. At the Reformation the "*Primer*" was retained, but the requisite changes were made. In 1545, Henry VIII. ordered to be printed an English "form of Public Prayer," entitled the "*Primer*," said to be "set furth by the Kinge's majestie, and his clergie, to be taught, lerned, and red." A copy of this rare book is extant: it was once the property of Sir John Clark, priest of the chapel of Leedsbridge, and founder of the school. This appears from the following autograph note in the "*Calendar*:" "This day I began the schole at Leeds, July 4, 1563."

It would be hard to say when the contents of the "*Primer*" were changed from sacred to secular: the change was probably very gradual, more especially as the primers printed to this day contain occasional prayers, the good seed which can not be sown too early in the mind of childhood. The accounts of the grammar schools of the sixteenth century contain much interesting evidence of the value attached to school-books by the care which is directed to be taken of them. Thus, in the corporation records of Boston, in Lincolnshire, in 1578, it was agreed that "a Dictionarye shall be bought for the scollers of the Free Schoole; and the same booke to be *tyed in a cheque*, and set upon a deak in the scoole, whereunto any scoller may have access as occasion shall serve." There are later entries of the corporation purchasing dictionaries for the use of the school; besides presents of dictionaries, lexicons, grammars, folio English Bibles, &c.—(*Thompson's History of Boston*.)

### THE HORNBOOK.

Another "dumb teacher" was the Hornbook, of which a specimen exists, in black-letter, of the time of Queen Elizabeth. It appears to be at least as ancient as 1570, is mounted on wood, and protected with transparent horn.

"The letters may be read, *through the horn*,  
That makes the story perfect."—*Ben Jonson*.

There is a large cross, the *criss-cross*, and then the alphabet in large and small letters. The vowels follow next, and their combinations with the consonants; and the whole is concluded with the Lord's Prayer and the *Roman* numerals. The Arabic numerals are not given. Shakspeare thus refers to the cross-row of the Hornbook:—

"He hearkens after prophecies and dreams;  
And from the cross-row plucks the letter G;  
And says, a wizard told him that by G  
His issue disinherited should be."—*Richard III.*

Again, in "*Love's Labour's Lost*," act v. scene 1, Moth, the page to Armado, says, in describing Holofernes the schoolmaster, "He teaches boys the Hornbook."

Cotgrave has, "*La Croix de par Dieu*, the Christ's-crosse-rowe, or horne-booke, wherein a child learns it;" and Florio, ed. 1611, p. 93, "*Centurulo*, a childes horne-booke hanging at his girdle."



HORNBOOK OF THE EIGHTEENTH CENTURY.

In the collection of Sir Thomas Phillipps, at Middlehill, are two genuine Hornbooks of the reigns of Charles I. and II. Locke, in his "*Thoughts on Education*," speaks of the "ordinary road of the Hornbook and Primer," and directs that "the Lord's Prayer, the Creed, and the Ten Commandments he should learn by heart, not by reading them himself in his Primer, but by somebody's repeating them before he can read."

Shenstone, who was taught to read at a dame-school, near Halesowen, in Shropshire, in his delightfully quaint poem of the *Schoolmistress*, commemorating his venerable preceptor, thus records the use of the Hornbook:—

"Lo; now with state she utters her command;  
Eftsoons the urchins to their tasks repair;  
Their books of stature small they take in hand,  
Which with pellucid horn secured are  
To save from finger wet the letters fair."

Cowper thus describes the Hornbook of his time:—

"Neatly secured from being soiled or torn  
Beneath a pane of thin translucent horn;  
A book (to please us at a tender age  
'Tis called a book, though but a single page)  
Presents the prayer the Saviour designed to teach,  
Which children use, and parsons—when they preach."

*Tirocinium, or a Review of Schools, 1784.*

We have somewhere read a story of a mother tempting her son along the cross-row by giving him an apple for each letter he learnt. This brings us to the gingerbread alphabet of our own time, which appears to have been common a century and a half since.

"To master John the English maid  
A Hornbook gives of gingerbread;  
And, that the child may learn the better,  
As he can name, he eats the letter."—*Prior.*

An anecdote illustrative of Lord Erskine's readiness is related—that, when asked by a judge if a single sheet could be called a book, he replied, "The common Hornbook, my lord."

In "*Specimens of West Country Dialect*," the use of the Hornbook is thus shown:—

"Commether, *Billy Chubb*, an brenge the hornen book. Gee ma the vaster in tha windor, you *Pui Came!*—what! be a alepsid—I'll wäke ye. Now, *Billy*, there's a good bway! Ston still there, and mind what I da sä to ye, an whaur I da point. Now; criss-cross, girt ä, little ä—b—c—d. That's right *Billy*; you'll soon lorn the criss-cross-lain—you'll soon anvergit Bobby Jiffy—you'll soon be a *scholard*. A's a pirty chubby bway—Lord love'n!"

John Britton, who was born in the parish of Kingston St. Michael's Wilts, in 1771, tells us, in his "*Autobiography*," that he was placed with a schoolmistress. "Here," he writes, "I learnt 'the Christ-cross-row' from a Hornbook, on which were the alphabet in large and small letters, and the nine figures in Roman and Arabic numerals. The Hornbook is now a rarity." Such a Hornbook we have engraved. It was met with in the year 1850, among the old stock of a bookseller at Peterborough, in Lincolnshire, and is thus described: Its dimensions are 9 by 5 inches. The alphabet, &c., are printed upon white paper, which is laid upon a thin piece of oak, and is covered with a sheet of horn, secured in its place by eight tacks, driven through a border or mounting of brass; the object of this horn-covering being to keep the "book," or rather leaf, unsoiled. The first line is the cross-row; so named, says Johnson, "because a cross is placed at the beginning, to show that the end of learning is piety."

The Hornbook was not always mounted on a board; many were pasted on the back of the horn only.

Such was the rudeness of the "dumb teacher" formerly employed at the dame-school, and elsewhere. It was, in all probability, superseded by Dr. Bell's sand-tray, upon which the children traced their own letters. Next came the "Battledore" and "Reading-made-Easy;" though the Spelling-book is considerably older than either. The Battledore, by the way, reminds us of a strategy of tuition mentioned by Locke: "By pasting the vowels and consonants on the sides of dice, he has made this a play for his children, whereby his eldest son in coats has played himself into spelling."—*Timb's "School Days," &c.*

## TRIPOS.

The original *Tripes*, from which the Cambridge class-lists have derived their name, was a three-legged stool, on which, on Ash-Wednesday, a bachelor of one or two years' standing (called therefrom the Bachelor of the Stool) used formerly to take his seat, and play the part of a public disputant in the quaint proceedings which accompanied admission to the degree of B. A. In course of time, the name was transferred from the stool to him that sat on it, and the disputant was called the *Tripes*; thence it passed to the *day* when the stool became a post of honor; then to the *lists* published on that day, containing the seniority of commencing B. A.'s, arranged according to the pleasure of the proctors; and, ultimately, it obtained the enlarged meaning now universally recognized, according to which it stands for the examination, whether in mathematics, classics, moral or physical science, as well as for the list by which the result of that examination is made known.—*Notes and Queries*, No. 117.

## UNIVERSITY HONORS.

A very prevalent mistake is supposing that men, who have attained great distinction and high honors at the two English universities, do not, in after-life, occupy the most eminent positions at the bar, or the bench, and in the senate.

OXFORD.—Earl of Eldon, English Prize Essay, 1771; Lord Tenterden, (Lord Chief Justice, of the King's Bench,) English Essay, 1786, Latin verse, 1784; Sir W. E. Taunton, (Judge in the Court of King's Bench,) English Essay, 1793; J. Phillimore, (Professor of Civil Law,) English Essay, 1798; Sir C. E. Gray, (Chief Justice of Bengal,) English Essay, 1808; Sir J. T. Coleridge, (Judge in Court of Queen's Bench,) English Essay, 1813, Latin verse, 1810, Latin Essay, 1813, 1st class Classics, 1812; Herman Merivale, (Professor of Political Economy,) English Essay, 1830, 1st class Classics, 1827; Roundell Palmer, (Deputy Steward of the University,) Latin Essay, 1835, Latin verse, 1831, English verse, 1832, 1st class Classics, 1834; Lord Colchester, Latin verse, 1777; Sir J. Richardson, (Judge in Common Pleas,) Latin verse, 1792; Sir Christopher Pulteney, (Chief Justice at Calcutta,) Latin verse, 1794; G. K. Rickards, (Professor of Political Economy,) English verse, 1830, 2nd class Classics, 1833; Nassau W. Senior, (Professor of Political Economy,) 1st class Classics, 1811; Sir Richard Bethell, (Attorney-General, University Counsel,) 1st class Classics, 1818; Honorable J. C. Talbot, (Deputy High Steward,) 1st class Classics, 1825; Travers Twiss, (Regius Professor of Civil Law,) 2nd class Classics, 1830.

CAMBRIDGE.—Sir F. Maclure, (Baron, Exchequer,) 4th Wrangler, 1752, Senior Medalist; Sir Elijah Impey, (Chief Justice, Fort William, Bengal,) 2nd Senior Optime, 1756, Junior Medalist; Sir J. Wilson, (Judge, Common Pleas,) Senior Wrangler, 1761; Lord Alvanley, (Chief Justice, Common Pleas,) 12th Wrangler, 1766; the late Lord Ellenborough, (Chief Justice, King's Bench,) 3rd Wrangler, 1771, Senior Medalist; Sir S. Lawrence, (Judge, Common Pleas,) 7th Wrangler, 1771; Sir H. Russell, (Judge in India,) 4th Senior Optime, 1772; the late Lord Manners, (Chancellor of Ireland,) 5th Wrangler, 1777; Chief Justice Warren, of Chester, 9th Wrangler, 1785; the late John Bell, Senior Wrangler, 1786, Senior Smith's Prizeman; Sir J. Littleton, (Judge in Court of Queen's Bench,) Senior Wrangler, 1787, Senior Smith's Prizeman; Lord Lyndhurst, (late Lord Chancellor,) 2nd Wrangler, 1794, Junior Smith's Prizeman; Sir John Beckett, (Judge Advocate,) 5th Wrangler, 1795; the late Sir John Williams, (Judge, Queen's Bench,) 19th Senior Optime, 1798; the late Sir N. C. Tindal,

(Chief Justice, Common Pleas,) 8th Wrangler, 1799, Senior Medalist; the late Sir L. Shadwell, (Vice-Chancellor of England,) 7th Wrangler, 1800, Junior Medalist; Starkie, (Downing Professor of Law, University Counsel,) Senior Wrangler, 1803, Senior Medalist; the late Sir T. Coltman, (Judge, Common Pleas,) 13th Wrangler, 1803; Lord Chief Baron Pollock, Senior Wrangler, 1806, Senior Smith's Prizeman; Lord Langdale, Senior Wrangler, 1808, Senior Smith's Prizeman; the late Baron Alderson, Senior Wrangler, 1809, Senior Smith's Prizeman, and Senior Medalist; Sir W. H. Maule, (Judge, Common Pleas,) Senior Wrangler, 1810, Senior Smith's Prizeman; Baron Platt, (Exchequer,) 5th Junior Optime, 1810; Chambers, (Judge of Supreme Court, Bombay,) 5th Wrangler, 1811; Lord Cranworth, 17th Wrangler, 1812; Mirehouse, (Author of Law of Tithes, and Common Sergeant of City of London,) 13th Senior Optime, 1812; Sir J. Romilly, (Downing Professor of Law, and Professor of Law, University College, London,) 4th Wrangler, 1813; Vice-Chancellor Kinderley, 4th Wrangler, 1814; Sir B. H. Malkin, (Chief Justice of Prince of Wales' Island,) 3rd Wrangler, 1818; Lord Justice Turner, 9th Wrangler, 1819; the late R. C. Hildyard, (Queen's Counsel,) 12th Senior Optime, 1823; Mr. John Cowling, Q. C., M. P., (University Counsel, and Deputy High Steward,) Senior Wrangler, 1824, Senior Smith's Prizeman; Vice-Chancellor Wood, 24th Wrangler, 1824; Vice-Chancellor Parker, 7th Wrangler, 1825; Mr. Loftus T. Wigram, Q. C., (M. P. for University,) 8th Wrangler, 1825; Chief Justice Martin, (New Zealand,) 26th Wrangler, 1829, 3rd in 1st class Classics, and Junior Medalist.—*Times* "School Days."

## THE BRITISH MUSEUM.

The British Museum has been the growth of a century, between the purchase of Montague House for the collection in 1753 and the completion of the new buildings. The Museum originated in a suggestion in the will of Sir Hans Sloane, (d. 1753,) offering his collection to parliament for £20,000, it having cost him £50,000. The offer was accepted; and by an Act (26th George II.) were purchased all Sir Hans Sloane's "library of books, drawings, manuscripts, prints, medals, seals, cameos and intaglios, precious stones, agates, jaspers, vessels of agate and jasper, crystals, mathematical instruments, pictures," &c. By the same Act was bought, for £10,000, the Harleian Library of MSS., (about 7600 volumes of rolls, charters, &c.) to which were added the Cottonian Library of MSS., and the library of Major Arthur Edwards. By the same Act also was raised by lottery £100,000, out of which the Sloane and Harleian collections were paid for; £10,250 to Lord Halifax for Montague House, and £12,873 for its repairs; a fund being set apart for the payment of taxes and salaries of officers. Trustees were elected from persons of rank, station, and literary attainments; and the institution was named THE BRITISH MUSEUM. To Montague House were removed the Harleian collection of MSS. in 1755; other collections in 1756; and the Museum was opened to the public January 15, 1759.

ROBERT RECORDE was the first who wrote on Arithmetic, and the first who wrote on Geometry, in English; the first who introduced Algebra into England; the first who wrote on Astronomy and the doctrine of the Sphere in England; and, finally, the first Englishman (in all probability) who adopted the system of Copernicus. Recorde was also the inventor of the present method of extracting the square-root; the inventor of the sign of equality; and the inventor of the method of extracting the square-root of multinomial algebraic quantities.

## XIX. BOOKS OF REFERENCE.

THIRTY years ago, a very few expensive foreign works were the only books of reference accessible to the American scholar. But so rapid has been our progress as a nation in this respect that there now exists, not a complete American scientific and learned apparatus, but an exceedingly valuable and creditable collection of American books of reference, extensive enough for most purposes of the teacher, the scholar, the literary man, the man of business, and the general reader.

With a view to afford our subscribers some useful directions for selection among such books, we have collected the following list of American Reference Books. The names of several others, which have already been noticed in this Journal, are given at the end of the list.

*The New American Cyclopædia.* Edited by GEORGE RIPLEY and C. A. DANA. Vol. VIII. Fugger-Haynau. New York. D. Appleton & Co. 1859. Roy. 8vo., pp. 788.

We have already twice referred to this greatest American literary enterprise of the day, with hearty commendation. We know of no encyclopædia more certain to be needed every day by every man. The mastery of half the work would alone constitute a man of extended general information.

*Appleton's Dictionary of Machines, Mechanics, Engine-work, and Engineering.* New York: D. Appleton & Co. 2 vols., roy. 8vo., pp. 960 each.

A very valuable and convenient manual for the mechanician. Its treatises contain much that is interesting to all; the articles, *e. g.*, on the Croton Aqueduct and the Brooklyn Dry Dock, both afford the engineer his professional information and contain narratives of two enterprises in which every American may take justifiable pride. Large masses of technical information, and many valuable tables, and clear and detailed cuts, are throughout given.

*A Critical Dictionary of English Literature, and British and American Authors.* By S. AUSTIN ALLIBONE. Vol. I. Philadelphia: Childs & Peterson, 1858. Roy. 8vo., pp. 1005.

This work fills a new place in literature. We have had cyclopædias of biography, and of books; but none of the book-makers' lives and works together.

The list of names is very satisfactorily full; for no such list will ever be perfect. The bibliographical lists of each author's works are also remarkably full and correct. The indexes, which Mr. Allibone proposes to add, will constitute an extensive apparatus for referring to literature. In short, the work promises to be indispensable to every man of letters or literary culture or leisure.

*American Almanac and Repository of Useful Knowledge for 1860.* Boston: Crosby, Nichols & Co. 12mo., pp. 391.

This invaluable annual has now completed a series of thirty-one numbers. The thirty volumes contain a mass of general and detailed information respecting the financial, political, intellectual, and social condition of the country and the states nowhere else so compact and accessible. Each year's number furnishes the owner with the means of a solid knowledge of the condition of the country



for that year. Its meteorological and scientific discussions are of a high order of value; and the almanac is prepared by Mr. Geo. P. Bond, of Cambridge, one of the most competent persons in the United States. The obituary notices alone, which, as well as the miscellaneous matter, may be referred to by the indexes in the volumes for 1839, 1849, and 1859, constitute a great body of biographical information.

*A Copious and Critical Latin-English Lexicon, founded on the larger Latin-German Lexicon of Dr. W. FREUND.* By E. A. ANDREWS, LL. D. New York: Harper & Brothers. 1860. Imp. 8vo., pp. 1663.

There are many living graduates of our colleges who had no Latin Lexicon, except the venerable school edition of Ainsworth; and, until the publication of Prof. Andrews' work, no other was accessible to the American student, except Leverett. Prof. Andrews' Lexicon is a vast advance upon either of these, and is beyond all comparison the best for the present student. There is no other Latin Lexicon which we should recommend to him. It contains all the substance and much of the detail of the vast and conscientious learning and labor of Freund, judiciously condensed; and the prominent, heavy-faced type of the vocabulary words and directing figures is a most convenient guide to the eye of the consulter.

*A Copious and Critical English-Latin Lexicon, founded on the Dictionary of Dr. GEORGES.* By RIDDLE and ARNOLD. First American edition, revised by CHARLES ANTHON. New York: Harper & Brothers. Imp. 8vo., pp. 753.

It is impossible to be a really good Latin scholar without being able to speak and write decent Latin. It is only within a few years that this department of the study, formerly so predominant, has a little been revived in some American colleges. The wretched English-Latin department of Ainsworth, reprinted by Leverett, furnished the only and inadequate vocabulary. The present work is the joint result of first-class scholars of three nations. It will be found an indispensable assistant in the study of Latin.

*A Classical Dictionary; containing an account of the principal proper names mentioned in ancient authors. Together with an account of coins, weights, and measures.* By CHARLES ANTHON. New York: Harper & Brothers. 1859. Roy. 8vo., pp. 1451.

The standard work of its class for the American student. Prof. Anthon's reputation for faithfulness and ability is too high to be increased by our praise. This fourth edition testifies to his standing with the public. This volume belongs to the apparatus of reference, without which the student, confined to his dry text and drier grammar, will gain but a scant and unsymmetrical measure of learning. It is preceded by a useful list of authorities used in compiling it.

*A Dictionary of Greek and Roman Antiquities.* Edited by WILLIAM SMITH. Third American edition, revised by CHARLES ANTHON. New York: Harper & Brothers. Roy. 8vo., pp. 1124.

The work of Smith is of established reputation, and is here variously improved in arrangement and increased in materials, for the better accommodation of the American scholar. As thus edited, it belongs to the same group of necessary reference-books as the Classical Dictionary noticed above, and the Geography noticed below.

*A System of Ancient and Medieval Geography, for the Use of Schools and Colleges.* By CHARLES ANTHON. New York: Harper & Brothers. 1855. 8vo., pp. 769.

As the author remarks in his preface, ancient history and ancient geography

ought always to be studied together. This volume is an ample manual for all the purposes of American school and collegiate students. It is also a reference-book of great value to the general reader. Like the author's Classical Dictionary, it contains a convenient list of authorities on the subject.

*The Grammar of English Grammars.* By GOULD BROWN. Second edition, revised and enlarged. New York: S. S. and W. Wood. 1857. Roy. 8vo., pp. 1070.

This great monument of the author's industry contains his theory of English grammar, worked out into most full and conscientious detail, and with such numerous references to authorities, and to other grammatical writers, as render it, in addition, a remarkably useful storehouse of materials for opinions on the subject. It contains a good list of writers on English Grammar.

*Mathematical Dictionary and Cyclopædia of Mathematical Science.* By CHARLES DAVIES and WILLIAM G. PECK. New York: A. S. Barnes and Burr. 1859. 8vo., pp. 592.

A valuable and comprehensive compendium for students. It will be found still more convenient, as a book of reference, by those who may feel an occasional desire to refresh or correct half-forgotten studies. The definitions and descriptions are remarkably clear; and the mathematical processes quite sufficient in extent for the purposes of the work.

*The American Farmer's Encyclopædia; being a complete Guide for the Cultivation of every variety of Garden and Field Crops.* By GOUVERNEUR EMERSON. New York: A. O. Moore. 1858. Roy. 8vo., pp. 1179.

An extensive collection of information on agricultural topics. It contains very much that ought to interest and aid every farmer.

*A Classical Atlas, to Illustrate Ancient Geography.* By ALEXANDER G. FINDLAY. New York: Harper & Brothers.

Twenty-five good maps and an extensive index of geographical names. It is as gross an error to study ancient history or the classics without constantly consulting a work of this nature, as it would be to study modern geography without maps.

Other American Reference Books, heretofore noticed in this Journal, are as follows:—the volume and page of the notice being given with it.

*Complete Pronouncing Gazetteer.* By J. THOMAS, T. BALDWIN, and others. Vol. II., p. 739.

*Appleton's Cyclopædia of Biography.* Do.

*English-Grammar.* By W. C. FOWLER. Do.

*The Microscope, and its Revelations.* By W. B. CARPENTER. Do.

*Atlas of Classical Geography.* By W. HUGHES. Edited by GEORGE LONG. Do.

*Geography of Nature.* By VULLIET. Translated from French. Do., p. 740.

*Treatise on English Punctuation.* By JOHN WILSON. Do., p. 741.

*Historical Atlas.* By J. E. WORCESTER. Do., p. 745.

*Cyclopædia of American Literature.* By E. A. and G. L. DUYCKINCK. Do., p. 746.

*Dictionary of Medical Science.* By R. DUNGLISON. Do., p. 320.

*American Educational Year-Book.* Vol. IV., p. 832.

*American Eloquence.* By FRANK MOORE. Do.

*Cleveland's Compendium of American Literature.* Vol. V., p. 318.

Of books on educational history, theory, or art, published during 1859, we have the following. It is not improbable that others have failed to reach us.

*Pestalozzi and Pestalozzianism.* By HENRY BARNARD. New York: F. C. Brownell. 8vo., pp. 238 and 230.

*Educational Biography. Part I. Memoirs of Teachers and Educators. Vol. I. United States.* By HENRY BARNARD. New York: F. C. Brownell. 8vo., pp. 524.

*Higher Christian Education.* By BENJAMIN W. DWIGHT. New York: A. S. Barnes & Burr. 12mo., pp. 347.

*Works of Philip Lindsley, D. D. Vol. I. Educational Discourses.* Philadelphia: J. B. Lippincott & Co. 8vo., pp. 588.

*Jubilee at MOUNT ST. MARY'S, Emmetsburgh, Md., Oct. 6, 1858.* New York: Dunigan & Brother. 12mo., pp. 288.

*The Teacher's Assistant; or, Hints and Methods in School Discipline and Instruction.* By CHARLES NORTHEND. Boston: Crosby, Nichols & Co. 12mo., pp. 358.

*Lectures on Mental and Moral Culture.* By SAMUEL P. BATES. New York: A. S. Barnes & Burr. 12mo., pp. 319.

*History and Progress of Education* By PHILOMELIUS. With Introduction by HENRY BARNARD. New York: A. S. Barnes & Burr. 12mo., pp. 310.

*The Normal; or, Methods of Teaching the Common Branches.* By ALFRED HOLBROOK. New York: A. S. Barnes & Burr. 12mo., pp. 456.

*Hours with my Pupils.* By MRS. LINCOLN PHELPS. New York: C. Scribner. 12mo., pp. 263.

*School Amusements; or, How to make the School Interesting.* By N. W. TAYLOR ROOT. New York: A. S. Barnes & Burr. 12mo., pp. 225.

We do not pretend to make an accurate comparison between the two years thus selected, on account of the labor and detail of estimating the very extensive variety of public and institutional reports and other documents, which should, strictly, be included. But the following summaries are certainly within the truth, viz:—

Books, *twelve*; public documents, *say ten* volumes; journals, each a volume a year, at least *twenty*. Total, in 1859, forty-two, against three; a fourteen-fold increase in twenty-five years.

The following works, though not falling within the class of those above mentioned, may be named here, for the sake of information, as useful recent educational publications.

*Art of Extempore Speaking.* By M. BAUTAIN. Translated from French, and with additions by a member of the New York Bar. New York: Scribner. 1859. 12mo., 364 pages.

*The Microscopist's Companion; with a Glossary of Microscopic Terms.* By JOHN KING, M. D. Cincinnati: Rickey, Mallory & Co. 1859. 8vo., 308 pages.

*Biography of Samuel Lewis.* By Wm. G. W. LEWIS. Cincinnati: Methodist Book Concern. 1857. 12mo., 429 pages.

*Memoir of the Life of Daniel Drake, M. D.* By E. D. MANSFIELD. Cincinnati: Applegate & Co. 1855. 12mo., 408 pages.

## XX. EDUCATIONAL LITERATURE.

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THE progress of education in this country, and the increase of popular interest in it, are strikingly and unerringly shown by the remarkable and rapid increase in the number of publications (not including text-books) on the subject. This appears from the contrast between the educational publications of a year, a quarter of a century ago, and those of the year 1859, just closed.

In the former year was published one single educational journal, the "*Annals of Education*;" a valuable work, but maintained not by its subscribers, but by the pecuniary and personal sacrifices of a few disinterested friends of education.

No volume on education was published, except the annual volume of collected lectures issued by the American Institute of Instruction.

At that time, instead of a State Department, with a superintendent of schools at its head, such as now exists in almost every state in the Union, there was no such department or office, except in a few states a nominal one, annexed to some other department of the government.

There were but a few states where any annual public document of any kind referred to the schools; and, in most of these, some financial officers merely registered and reported the yearly appropriations and necessary statistics. In Massachusetts, for instance, the secretary of state reported school statistics. In Connecticut, the commissioner of the school fund did the same, in reporting on the state and use of the fund; and similar ex-officio statements were given in Virginia. The first report on Pennsylvania schools, in that year, was two pages of mere announcements. In New York alone the secretary of state published yearly an able and valuable report upon the condition and needs of the schools.

Except in New York, these were not educational documents in any proper sense of the word; and we may thus state the total number of educational publications, except occasional addresses, &c., in 1834, as one periodical, one volume of lectures, and one public document; total, three.

Now observe the change. During 1859, educational monthlies, of octavo size, and each forming an annual volume of considerable thickness, have been published in eighteen of the states, nearly all of them being on a permanent basis; and in several of the states one, two, or more additional ones are also published.

The public documents of the various states for that year would, all together, constitute ten or twelve large 8vo. volumes. The annual report on schools of Pennsylvania, for instance, is of more than 300 pages; that of Illinois, (a biennial report, however,) of 423 pages; and with these should be, at least, mentioned the numerous and valuable reports published by the school authorities of Boston, New York, and many other cities.

But the extent of the matter thus published is not its greatest merit. These different series of publications contain very much valuable discussion of educational principles and practice, by the best and most competent minds of the different states; and great masses of various and carefully-prepared statistics, bearing upon the subject.

## CIRCULAR.

I commenced the publication of the "*American Journal of Education*," in 1855, from the belief that such a Periodical, national and catholic in aim and spirit, of sufficient extent to admit, in each issue, of full discussions of the History, Biography, Art, and Science of Education, and of the organization, administration, and statistics of its Institutions and Systems, was desirable and even necessary as a means of establishing the foundation and shaping the superstructure of our American civilization.

It was not commenced as an individual enterprise until efforts had been made, during several years, first to induce state and national educational bodies to undertake it, and then to enlist the co-operation of individual educators and public-spirited citizens. It was never supposed that the work would be a source of profit; but the first number was not issued without counting the cost, nor without fixing a period during which the undertaking would be carried on single-handed, if necessary. This period was five of the best years of my life; which I was from the first prepared to give to the work, without the slightest expectation of receiving any compensation for time or editorial services.

The first year's experience convinced me that but a very small proportion of those engaged in teaching either high or elementary schools, or in administering state or city systems, or of professed friends of popular education, would labor, spend, or even subscribe for a work of this character; and indeed that the regular subscription list would not meet the expense of printing and paper. But, in the hope that the completed series of volumes would be regarded as a valuable contribution to the permanent educational literature of the country, I have still gone forward, notwithstanding a formidable and increasing deficit.

I am still so reluctant to relinquish an enterprise carried so far, and for which I have sacrificed so much, that I have concluded to make one more appeal, to personal friends, professional teachers, and educational laborers, for their new or renewed subscriptions to the *Journal*, to enable me to add at least three more volumes to the series.

I wish particularly to embrace in these three volumes a large amount of material illustrative of

I. The history and present condition of Normal Schools and other Special Institutions and Agencies for the Professional Training and Improvement of Teachers.

II. The organization and characteristic features of Polytechnic Schools, and other institutions for the education of persons destined for other pursuits than those of Law, Medicine, and Theology.

III. The history and courses of instruction of the oldest and most flourishing Colleges and Universities in Europe and America.

IV. The most recent as well as the oldest successful Methods of Teaching the elementary and the higher branches of learning.

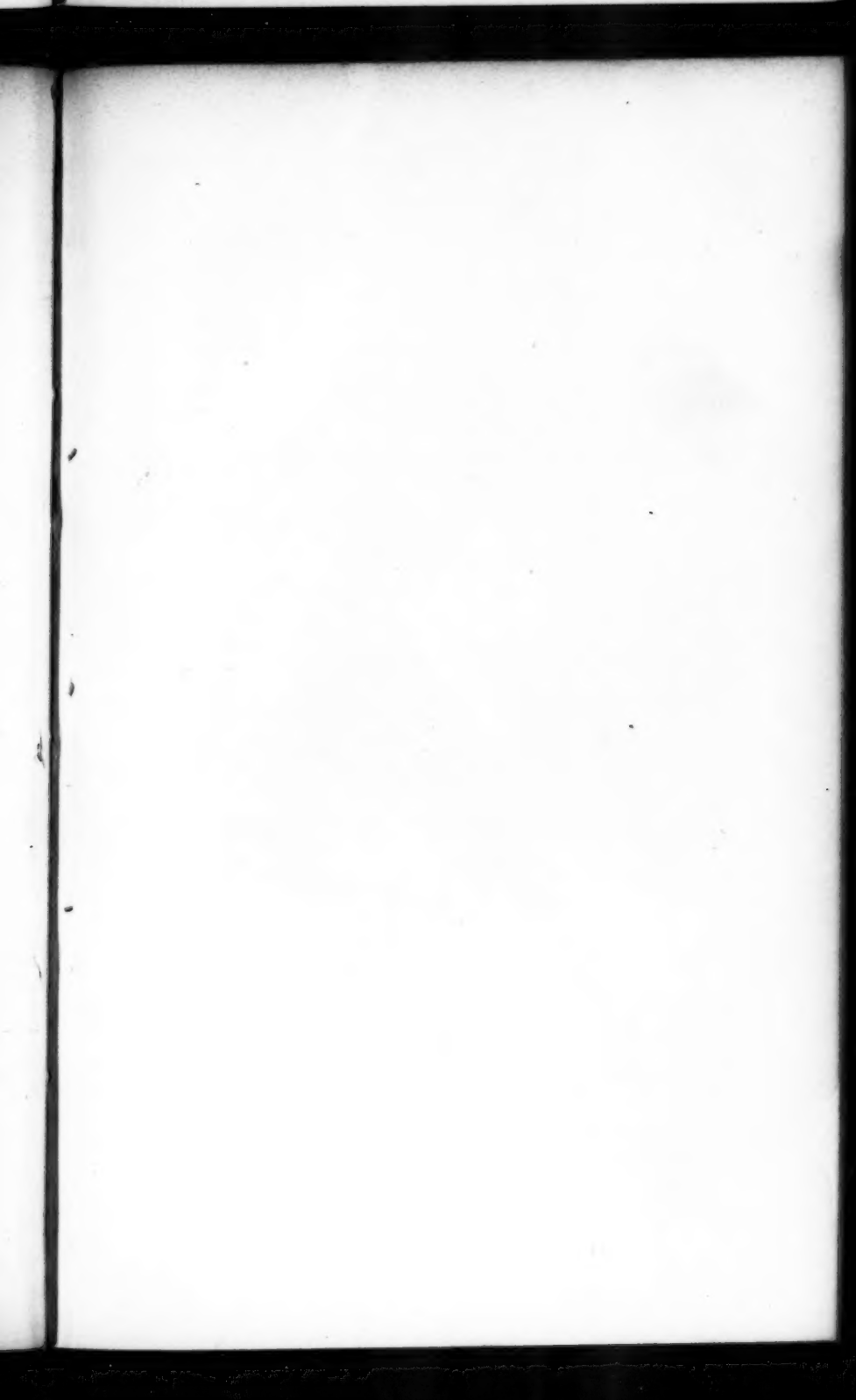
V. The life and services of many Teachers and Promoters of Education, whose labors or benefactions are associated with the foundation and development of institutions, systems, and methods of instruction.

HENRY BARNARD,

*Editor and Proprietor of the American Journal of Education.*

HARTFORD, CONN.,

January 18th, 1860.







Engr. by A. H. Russell.

*A. H. Russell*

